



Indiana Department of Transportation

County Harrison

Route SR-11

Des. No. 1600486

Part I - PUBLIC INVOLVEMENT

Every Federal action requires some level of public involvement, providing for early and continuous opportunities throughout the project development process. The level of public involvement should be commensurate with the proposed action.

Does the project have a historic bridge processed under the Historic Bridges PA\*? Yes No
If No, then: Opportunity for a Public Hearing Required? X

\*A public hearing is required for all historic bridges processed under the Historic Bridges Programmatic Agreement between INDOT, FHWA, SHPO, and the ACHP.

Discuss what public involvement activities (legal notices, letters to affected property owners and residents (i.e. notice of entry), meetings, special purpose meetings, newspaper articles, etc.) have occurred for this project.

Remarks: Notice of entry letters were mailed to potentially affected property owners near the project area on August 25, 2017 notifying them about the project and that individuals responsible for land surveying and field activities may be seen in the area. A sample copy of the Notice of Entry letter is included in Appendix C, page C4 to C5.
The project will meet the minimum requirements described in the current Indiana Department of Transportation (INDOT) Public Involvement Manual which requires the project sponsor to offer the public an opportunity to submit comment and/or request a public hearing. Therefore, a legal notice will appear in a local publication contingent upon the release of this document for public involvement. This document will be revised after the public involvement requirements are fulfilled.

Public Controversy on Environmental Grounds Will the project involve substantial controversy concerning community and/or natural resource impacts? Yes No X

Remarks: At this time, there is no substantial public controversy concerning impacts to the community or to natural resources.

Part II - General Project Identification, Description, and Design Information

Sponsor of the Project: Indiana Department of Transportation INDOT District: Seymour
Local Name of the Facility: State Road (SR) 11

Funding Source (mark all that apply): Federal X State X Local Other\*

\*If other is selected, please identify the funding source:

PURPOSE AND NEED:

Describe the transportation problem that the project will address. The solution to the traffic problem should NOT be discussed in this section. (Refer to the CE Manual, Section IV.B.2. Purpose and Need)

The need for this project stems from the deteriorating condition of the existing bridge (Structure No. 011-31-06120). An Indiana Department of Transportation (INDOT) Bridge Inspection Report dated July 3, 2018 documented transverse cracking in the deck and wearing surface, longitudinal cracking and delamination with efflorescence on beams 1, 7, and 8 of the superstructure. Beam 3 also has exhibits longitudinal cracking and spalling with exposed rebar. The substructure has exposed footings and small scour holes are present at both abutments on the east side of the structure. In addition, scour exists along the southeast wingwall and the channel exhibits signs of bank slumping. The Bridge Inspection Report gave the bridge a condition rating of "5". Condition Ratings range from "0" to "9" with "0" being a failed structure and "9" being a structure in excellent condition.

## Indiana Department of Transportation

County Harrison Route SR-11 Des. No. 1600486

The purpose of this project is to provide a structurally and hydraulically sufficient bridge that will ensure continued passage for motorists over S. Fork Buck Creek. This project will restore the overall condition rating of this bridge to a "9", indicating excellent condition as noted above.

**PROJECT DESCRIPTION (PREFERRED ALTERNATIVE):**

County: Harrison Municipality: Elizabeth

Limits of Proposed Work: From 225 ft. west to 326 ft. east from the center of the bridge.

Total Work Length: 0.10 Mile(s) Total Work Area: 0.938 Acre(s)

Is an Interchange Modification Study / Interchange Justification Study (IMS/IJS) required? If yes, when did the FHWA grant a conditional approval for this project?	Yes <sup>1</sup> <input type="checkbox"/>	No <input checked="" type="checkbox"/>
	Date: _____	

<sup>1</sup>If an IMS or IJS is required; a copy of the approved CE/EA document must be submitted to the FHWA with a request for final approval of the IMS/IJS.

*In the remarks box below, describe existing conditions, provide in detail the scope of work for the project, including the preferred alternative. Include a discussion of logical termini. Discuss any major issues for the project and how the project will improve safety or roadway deficiencies if these are issues.*

**Project Location**  
 This project is located on SR-11, approximately 0.51 mile south of SR 211 in Posey Township, in Green County, Indiana. Specifically, this project is located in Section 27 of Township 4 South, Range 5 East, in Harrison County, Indiana as shown on the Lanesville U.S. Geological Society (USGS) 7.5 Minute Topographic Map (Appendix B, page B2).

**Existing Conditions**  
 SR-11 is a north-south, two-lane, rural major collector that has an approach roadway width of 22 ft., consisting of two 10 ft. travel lanes with accompanying 4 ft. shoulders (1 ft. paved) within the project area. The average annual daily traffic (AADT) count was 3,165 vehicles per day (VPD) in 2018 (source: INDOT Roadway Inventory & Functional Class Viewer). The existing structure is a single span, concrete channel beam bridge, approximately 24 ft. in length, that was built in 1966 and is exhibiting signs of deficiencies. This bridge carries SR 11 over South Fork Buck Creek. There is one driveway present 240 ft. northeast of the project area and Greenbrier Road is located 150 ft. to the southwest of the project area. Surrounding land use is primarily rural residential, agricultural fields, and a large forested tract exists in the southern quadrant of the project area.

**Preferred Alternative**  
 INDOT and the Federal Highway Administration (FHWA) are intending to replace the existing structure. The project area is localized to the immediate area surrounding the bridge and will extend approximately 225 ft. west and 326 ft. east from the center of the structure. The scope of work includes the following:

- Replace the existing structure with a new reinforced concrete slab bridge
- Increase lane width to 11 ft.
- Full-depth pavement replacement where needed
- Install new guardrail
- Regrade the stream channel and the roadside ditches
- Place revetment riprap on geotextile along the stream banks
- Install riprap turnouts at all 4 corners of the bridge
- Raise the road profile grade by approximately 1.3 ft. to maintain compatibility with the adjacent roadway
- Reconstruct the roadway approach at Greenbrier Road

Please refer to Appendix B, pages B8 to B16 for plan sheets that illustrates the above stated work.

## Indiana Department of Transportation

County Harrison Route SR-11 Des. No. 1600486

Every effort will be made to avoid, minimize and/or mitigate project impacts during the bridge replacement project. This project demonstrates independent utility as it is a stand-alone project that is not dependent on any other planned projects.

Due to the scope of work, disruptions to traffic may be necessary as the project will involve a road closure with a detour using state routes. Please refer to the *Maintenance of Traffic (MOT)* section of this document for more details.

Based on the above noted information, the preferred alternative will meet the purpose and need of the project of the project by replacing Bridge No. 011-31-06120.

### OTHER ALTERNATIVES CONSIDERED:

*Describe all discarded alternatives, including the Do-Nothing Alternative and an explanation of why each discarded alternative was not selected.*

#### **The "No Build" Alternative**

The "No Build" Alternative was considered for this project. This alternative would eliminate any environmental impacts and would require no expenditure of funds for improvement. However, the "No Build" alternative would not address the purpose of the project, which is to provide a structurally and hydraulically sufficient structure that will ensure continued passage for motorists over South Fork Buck Creek. For the stated reasons, this alternative was eliminated from further consideration.

#### **Precast Three-Sided Flat Top Structure (Alternative 1)**

Alternative 1 would consist of replacing the existing structure with a 28 ft. span by 9 ft. rise, precast three-sided flat top structure with wingwalls, approximately 44 ft. in length. This alternative would have greater environmental impacts and greater cost than the preferred alternative. Greater environmental impacts would stem primarily from the significant amount of earthwork required to construct a 44 ft. long precast three-sided flat top structure, which would result in greater impacts to South Fork Buck Creek. In addition, this project would result in approximately \$216,650 of additional cost when compared to the preferred alternative. The additional cost stems from the cost of a larger structure, earthwork, additional right-of-way, and raising the vertical alignment of the roadway by 5.3 ft. Although this alternative meets the purpose and need of the project, it was ultimately dismissed for a more feasible and prudent alternative.

#### **Three-Span Reinforced Concrete Slab Bridge (Alternative 2)**

Alternative 2 would include replacing the existing concrete channel beam bridge with a three-span, 54 ft. in length, 16 in. deep reinforced concrete slab bridge. This alternative would have greater environmental impacts and greater cost than the preferred alternative. Greater environmental impacts would stem primarily from the longer span and raise in vertical alignment of approximately 3 ft. 6 in. This would result in increased impacts to South Fork Buck Creek. In addition, the larger structure, and increased vertical alignment would contribute to approximately \$376,050 of additional cost when compared to the preferred alternative. Although this alternative meets the purpose and need of the project, it was ultimately dismissed for a more feasible and prudent alternative.

#### **The Do Nothing Alternative is not feasible, prudent or practicable because (Mark all that apply):**

- It would not correct existing capacity deficiencies;
- It would not correct existing safety hazards;
- It would not correct the existing roadway geometric deficiencies;
- It would not correct existing deteriorated conditions and maintenance problems; or
- It would result in serious impacts to the motoring public and general welfare of the economy.
- Other (Describe)

X

## Indiana Department of Transportation

County Harrison Route SR-11 Des. No. 1600486

### ROADWAY CHARACTER:

Functional Classification: Rural Major Collector (State Route)  
 Current ADT: 3,165 VPD (2018) Design Year ADT: 3,656 VPD (2041)  
 Design Hour Volume (DHV): 343 Truck Percentage (%): 10  
 Designed Speed (mph): 50 Legal Speed (mph): 50

**Existing** **Proposed**

Number of Lanes:	2	2
Type of Lanes:	10ft. Travel (NB &SB)	11ft. Travel (NB &SB)
Pavement Width:	28 ft.	30 ft.
Shoulder Width:	1-2 ft.	4 ft.
Median Width:	N/A ft.	N/A ft.
Sidewalk Width:	N/A ft.	N/A ft.

Setting:  Urban  Suburban  Rural  
 Topography:  Level  Rolling  Hilly

*If the proposed action has multiple roadways, this section should be filled out for each roadway.*

### DESIGN CRITERIA FOR BRIDGES:

Structure/NBI Number(s): 011-31-06120 (NBI: 003070) Sufficiency Rating: 67.1  
(Rating, Source of Information)

**Existing** **Proposed**

Bridge Type:	Concrete Channel Beam	Reinforced Concrete Slab
Number of Spans:	1	1
Weight Restrictions:	N/A ton	N/A ton
Height Restrictions:	N/A ft.	N/A ft.
Curb to Curb Width:	28.3 ft.	30 ft.
Outside to Outside Width:	30.3 ft.	33 ft.
Shoulder Width:	1-2 ft.	4 ft.
Length of Channel Work:		171 ft.

*Describe bridges and structures; provide specific location information for small structures.*

Remarks: The project involves the replacement of Bridge No. 011-31-06120 (NBI: 003070) that carries SR-11 over South Fork Buck Creek. This structure is a single span, concrete channel beam bridge, approximately 24 ft. in length, that was built in 1966. This bridge is not listed as a select or non-select bridge and is not on the latest listing of Historic Bridges. No other bridges or structures will be impacted by this project.

Will the structure be rehabilitated or replaced as part of the project?  Yes  No  N/A

*If the proposed action has multiple bridges or small structures, this section should be filled out for each structure.*

## Indiana Department of Transportation

County Harrison

Route SR-11

Des. No. 1600486

<b>MAINTENANCE OF TRAFFIC (MOT) DURING CONSTRUCTION:</b>
--

	Yes	No
Is a temporary bridge proposed?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Is a temporary roadway proposed?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Will the project involve the use of a detour or require a ramp closure? (describe in remarks)	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Provisions will be made for access by local traffic and so posted.	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Provisions will be made for through-traffic dependent businesses.	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Provisions will be made to accommodate any local special events or festivals.	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Will the proposed MOT substantially change the environmental consequences of the action?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Is there substantial controversy associated with the proposed method for MOT?	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Remarks: The Maintenance of Traffic (MOT) for this project will involve a detour that utilizes nearby State Roads. The detour route will redirect traffic to use SR-62 to SR-337 which connects back to SR-11 near the Town of Dogwood, for a total of 22.2 miles. This detour will add approximately 2.9 miles for traveling motorists. Please refer to Appendix B, page B9 for the plan sheet detailing MOT.

The closures/lane restrictions will pose a temporary inconvenience to traveling motorists (including school buses and emergency services); however, no significant delays are anticipated, and all inconveniences will cease upon project completion. Delays would occur during construction but will cease with project completion.

<b>ESTIMATED PROJECT COST AND SCHEDULE:</b>
---

Engineering: \$ 351,590 (2020-21) Right-of-Way: \$ 25,000 (2020) Construction: \$ 804,450.00 (2021)

Anticipated Start Date of Construction: Spring of 2021

Date project incorporated into STIP July 2, 2019

Is the project in an MPO Area? Yes  No

If yes,

Name of MPO N/A

Location of Project in TIP N/A

Date of incorporation by reference into the STIP N/A

**Indiana Department of Transportation**

County Harrison

Route SR-11

Des. No. 1600486

**RIGHT OF WAY:**

Land Use Impacts	Amount (acres)	
	Permanent	Temporary
Residential	0.911	0
Commercial	0	0
Agricultural	0	0
Forest	0	0
Wetlands	0	0
Other:	0	0
Other:	0	0
<b>TOTAL</b>	<b>0.911</b>	<b>0</b>

*Describe both Permanent and Temporary right-of-way and describe their current use. Typical and Maximum right-of-way widths (existing and proposed) should also be discussed. Any advance acquisition or reacquisition, either known or suspected, and there impacts on the environmental analysis should be discussed.*

Remarks: Existing right-of-way within the project area is limited to the pavements edge and is used strictly for roadway preservation.

The project requires approximately 0.911 acre of permanent right-of-way (ROW) from five residential properties. No temporary ROW will be needed for this project.

If the scope of work or permanent or temporary right-of-way amounts change, the INDOT Environmental Services Division (ESD) and the INDOT District Environmental Section will be contacted immediately.

**Part III – Identification and Evaluation of Impacts of the Proposed Action**

**SECTION A – ECOLOGICAL RESOURCES**

	<u>Presence</u>	<u>Impacts</u>	
		<u>Yes</u>	<u>No</u>
<b>Streams, Rivers, Watercourses &amp; Jurisdictional Ditches</b>	<b>X</b>	<b>X</b>	
Federal Wild and Scenic Rivers			
State Natural, Scenic or Recreational Rivers			
Nationwide Rivers Inventory (NRI) listed			
Outstanding Rivers List for Indiana			
Navigable Waterways			

Remarks: Based on a desktop review, a site visit on September 19, 2017 by GAI, the aerial map of the project area (Appendix B, page B3), and the water resources map in the Red Flag Investigation (RFI) report (Appendix E, page E8), six stream segments are located within the 0.5-mile search radius. There is one stream segment, South Fork Buck Creek, present within the project area.

A *Waters of the U.S. Determination/Wetland Delineation Report* was approved by INDOT Ecology and Waterway Permitting Office on April 25, 2018. Please refer to Appendix F, pages F1 to F20 for the *Waters of the U.S. Determination/ Wetland Delineation Report*. It was determined that South Fork Buck Creek is a likely jurisdictional waterway. Two roadside ditches were observed within the project area; however, these features were excavated in upland soils to convey upland drainage and would not be considered jurisdictional or likely jurisdictional. The U.S Army Corps of Engineers (USACE) makes all final determinations regarding jurisdiction.

## Indiana Department of Transportation

County Harrison Route SR-11 Des. No. 1600486

The Federal Wild and Scenic Rivers listing, State Natural, Scenic, and Recreational Rivers listing, the Nationwide Rivers Inventory, Outstanding Rivers List for Indiana, and the U.S. Army Corps of Engineers list of Navigable Waterways were reviewed by environmental specialists at GAI to determine the possible presence of one of these waterways within the project area. No listed waterways were identified within or adjacent to the project area.

South Fork Buck Creek flows north to south through the project area. This waterway is a perennial stream and exhibits an ordinary high-water mark (OHWM). The OHWM measured 6 ft. wide and 8 in. deep with a pool area at the structure that measured 20ft. wide and 3 ft. deep. Impacts to South Fork Buck Creek will include re-grading the stream channel, placement of riprap, installation of the new structure, and construction of two temporary cofferdams to dewater the work area. Total permanent and temporary impacts below the OHWM will equal 174 linear feet or 0.089 acre. Stream mitigation will not be required for this project as cumulative stream impacts will be less than 300 linear feet. Permits for impacts to South Fork Buck Creek will be necessary. Please refer to the *Permits* section of this document for details

Early coordination letters were sent to the Indiana Department of Natural Resources, Division of Fish and Wildlife (IDNR-DFW), the U.S. Army Corps of Engineers (USACE), and the U.S. Fish and Wildlife Service (USFWS) on October 4, 2017 (Appendix C, pages C1 to C2). The IDNR-DFW indicated in their letter dated November 3, 2017 (Appendix C, pages C16 to C19), that the project would require formal IDNR approval for construction in a floodway pursuant to the Flood Control Act. The IDNR-DFW letter also provided a list of recommendations to help avoid and minimize impacts to South Fork Buck Creek.

The USACE did not respond to the early coordination letter.

The USFWS responded in a letter dated October 4, 2017 (Appendix C, pages C20 to C21), and did not provide any specific recommendations regarding impacts to South Fork Buck Creek.

All applicable recommendations provided by the IDNR-DFW are included in the *Environmental Commitments* section of this CE document.

<b>Other Surface Waters</b>	<u>Presence</u>	<u>Impacts</u>	
		Yes	No
Reservoirs	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Lakes	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Farm Ponds	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Detention Basins	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Storm Water Management Facilities	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other: _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Remarks: Based on a desktop review, a site visit on September 19, 2017 by GAI, the aerial map of the project area (Appendix B, page B3), and the water resources map in the Red Flag Investigation (RFI) report (Appendix E, page E8), there are seven other surface waters within the 0.5 mile search radius. No other surface waters are present within the project area; therefore, no impacts are expected.

<b>Wetlands</b>	<u>Presence</u>	<u>Impacts</u>	
		Yes	No
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Total wetland area: 0 acre(s) Total wetland area impacted: 0 acre(s)

(If a determination has not been made for non-isolated/isolated wetlands, fill in the total wetland area impacted above.)

Wetland No.	Classification	Total Size (Acres)	Impacted Acres	Comments
N/A	N/A	N/A	N/A	N/A

# Indiana Department of Transportation

County Harrison

Route SR-11

Des. No. 1600486

**Documentation**

**ES Approval Dates**

**Wetlands (Mark all that apply)**

Wetland Determination  
 Wetland Delineation  
 USACE Isolated Waters Determination  
 Mitigation Plan

X

April 25, 2018

**Improvements that will not result in any wetland impacts are not practicable because such avoidance would result in (Mark all that apply and explain):**

- Substantial adverse impacts to adjacent homes, business or other improved properties;
- Substantially increased project costs;
- Unique engineering, traffic, maintenance, or safety problems;
- Substantial adverse social, economic, or environmental impacts, or
- The project not meeting the identified needs.


*Measures to avoid, minimize, and mitigate wetland impacts need to be discussed in the remarks box.*

Remarks:

Based on a review of the National Wetlands Inventory (NWI) online mapper (<https://www.fws.gov/wetlands/data/Mapper.html>), a site visit on September 19, 2017 by GAI, the USGS topographic map (Appendix B, page B2), and the RFI report (Appendix E, pages E1 to E16), ten wetlands are located within the 0.5 mile search radius. There is one NWI mapped wetland present within or adjacent to the project area.

A *Waters of the U.S. Determination/Wetland Delineation Report* was approved by INDOT Ecology and Waterway Permitting Office on April 25, 2018. Please refer to Appendix F, pages F1 to F20 for the *Waters of the U.S. Determination/ Wetland Delineation Report*. It was determined that no wetlands exist within the project area. The USACE makes all final determinations regarding jurisdiction.

The mapped NWI wetland within the project area is classified as a R4SBCx wetland. This wetland is confined to the channel of South Fork Buck Creek. Therefore, this mapped NWI wetland is considered to be a stream feature, not a wetland. Impacts to this feature will be permitted for under stream impacts. No wetlands are known to exist within the project area. Therefore, no direct or indirect impacts to wetlands will occur with this project.

Early coordination letters were sent to the IDNR-DFW, the USACE, and the USFWS on October 4, 2017 (Appendix C, pages C1 to C2). The IDNR-DFW responded on November 3, 2017 (Appendix C, pages C16 to C19), with recommendations to avoid or mitigate impacts to wetlands.

The USACE did not respond to the early coordination letter.

The USFWS responded in a letter dated October 4, 2017 (Appendix C, pages C20 to C21), and did not provide any specific recommendations regarding wetlands.

All applicable recommendations provided by the IDNR-DFW are included in the *Environmental Commitments* section of this CE document.

**Presence**

**Impacts**

Yes      No

**Terrestrial Habitat**  
 Unique or High Quality Habitat

X

X	

*Use the remarks box to identify each type of habitat and the acres impacted (i.e. forested, grassland, farmland, lawn, etc).*

Remarks:

Based on a desktop review, a site visit on September 19, 2017 by GAI, and the aerial map of the project area (Appendix B, page B3), a number of large shade trees surround South Fork Buck Creek and a narrow forested riparian buffer surrounds the southern length of the stream. This habitat supports a variety of birds (passerines, waterfowl, and raptors), rodents, and mammals typical to fragmented mosaics of forested,

## Indiana Department of Transportation

County Harrison Route SR-11 Des. No. 1600486

agricultural, and residential areas. Impacts to this riparian habitat will be necessary for constructions access, installation of the riprap turnouts, tree clearing, and regrading of the stream channel. Approximately 0.057 acre of tree trimming/clearing is anticipated for this project, with the dominant tree species being American sycamore (*Platanus occidentalis*), american elm (*Ulmus Americana*), red maple (*Acer rubrum*), hackberry (*Celtis occidentalis*), and black locust (*Juglans nigra*). Total soil disturbance for this project will not exceed 0.93 acre. Avoidance alternatives are not practical for this project as impacts are necessary to meet the purpose and need of the project. However, impacts have been reduced to the greatest extent practicable to complete this project.

Early coordination letters were sent to the IDNR-DFW and the USFWS on October 4, 2017 (Appendix C, pages C1 to C2). The IDNR-DFW responded on November 3, 2017 (Appendix C, pages C16 to C19), with recommendations to avoid or minimize impacts to riparian habitat. The IDNR-DFW letter also provided a list of standard recommendations.

The USFWS responded in a letter dated October 4, 2017 (Appendix C, pages C20 to C21), and did not offer any specific recommendations regarding terrestrial habitat.

All applicable recommendations provided by the IDNR-DFW can be found in the *Environmental Commitments* section of this CE document.

*If there are high incidences of animal movements observed in the project area, or if bridges and other areas appear to be the sole corridor for animal movement, consideration of utilizing wildlife crossings should be taken.*

**Karst**

Is the proposed project located within or adjacent to the potential Karst Area of Indiana?  
 Are karst features located within or adjacent to the footprint of the proposed project?

Yes	No
<input checked="" type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>

If yes, will the project impact any of these karst features?

*Use the remarks box to identify any karst features within the project area. (Karst investigation must comply with the Karst MOU, dated October 13, 1993)*

Remarks:

Based on a desktop review, the project is located inside the designated karst region of Indiana as outlined in the October 13, 1993 Memorandum of Understanding (MOU). According to the topo map of the project area (Appendix B, page B2), and the RFI report (Appendix E, pages E1 to E16), there are no karst features identified within or adjacent to the project area. In the early coordination response, the Indiana Geological Survey (IGS) did not indicate that karst features exist in the project area (Appendix C, pages C11 to C13). They went on to state the project is in the 1% Annual Chance Flood Hazard zone and has a high bedrock resource potential. Response from IGS has been communicated with the designer on February 21, 2020. No impacts are expected.

**Threatened or Endangered Species**

Within the known range of any federal species  
 Any critical habitat identified within project area  
 Federal species found in project area (based upon informal consultation)  
 State species found in project area (based upon consultation with IDNR)

	Impacts	
	Yes	No
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Is Section 7 formal consultation required for this action?

Yes	No
<input type="checkbox"/>	<input checked="" type="checkbox"/>

Remarks:

Based on a desktop review and the Red Flag Investigation (Appendix E, pages E1 to E16), completed by GAI on August 7, 2018, the IDNR Harrison County Endangered, Threatened, and Rare (ETR) Species List has been checked and is included in Appendix E pages E9 to E16. The highlighted species on the list reflect the federal and state identified ETR species located within the county. According to the IDNR early coordination

## Indiana Department of Transportation

County Harrison

Route SR-11

Des. No. 1600486

response letter dated November 3, 2017 (Appendix C, pages C16 to C19), the Natural Heritage Program's Database has been checked and did not reveal the presence of federally threatened, endangered, or rare plant or animal species in the project vicinity.

### **Indiana and Northern Long-Eared Bat**

Project information was submitted through the USFWS's Information for Planning and Consultation (IPaC) portal, and an official species list was generated (Appendix C, pages C23 to C29). The project is within range of the federally endangered Indiana bat (*Myotis sodalis*) and the federally threatened northern long-eared bat (NLEB) (*Myotis septentrionalis*). Other species were found to be present within or adjacent to the project area along with the Indiana bat and NLEB. Refer to paragraph below.

The project qualifies for the Range-wide Programmatic Informal Consultation for the Indiana bat and northern long-eared bat (NLEB), dated May 2016 (revised February 2018), between FHWA, Federal Railroad Administration (FRA), Federal Transit Administration (FTA), and USFWS. An effect determination key was completed on February 17, 2020, and based on the responses provided, the project was found to "Not Likely to Adversely Affect" the Indiana bat and/or the NLEB. INDOT reviewed and verified the effect finding on March 05, 2020 and requested USFWS's review of the finding (Appendix C, pages C32 to C47). No response was received from USFWS within the 14-day review period; therefore, it was concluded they concur with the finding. Avoidance and Mitigation Measures (AMMs) are included as firm commitments in the *Environmental Commitments* section of this document.

The official species list generated from IPaC indicated one other federally endangered species, the Gray Bat (*Myotis grisescens*), is present within the project area. Coordination with the USFWS occurred on February 10, 2020 regarding the Gray bat (Appendix C, pages C48 to C51). It was determined that a "Not Likely to Adversely Affect" determination is appropriate for the Gray Bat as long as appropriate erosion and sediment control measures are implemented. A firm commitment to this effect is included in the *Environmental Commitments* of this document.

### **Migratory Birds**

Bridge No. 011-31-06120 has shown evidence of use (i.e. nests) by a bird species protected under the Migratory Bird Treaty Act (MBTA) during the July 7, 2018 inspection. Avoidance and minimization measures must be implemented prior to the start of and during the nesting season. Nests without eggs or young should be removed prior to construction during the non-nesting season (September 8 – April 30) and during the nesting season if no eggs or young are present. Nests with eggs or young cannot be removed or disturbed during the nesting season (May 1 – September 7). Nests with eggs or young should be screened or buffered from active construction. Details of the required procedures are outlined in the "Potential Migratory Bird on Structure Unique Special Provision". This firm commitment is included in the *Environmental Commitments* of this document.

This precludes the need for further consultation on this project as required under Section 7 of the Endangered Species Act, as amended. If new information on endangered species at the site becomes available, or if project plans are changed, USFWS will be contacted for consultation.

## Indiana Department of Transportation

County Harrison

Route SR-11

Des. No. 1600486

**SECTION B – OTHER RESOURCES**

<b>Drinking Water Resources</b>	<u>Presence</u>	<u>Impacts</u>	
		<u>Yes</u>	<u>No</u>
Wellhead Protection Area	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Public Water System(s)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Residential Well(s)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Source Water Protection Area(s)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sole Source Aquifer (SSA)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

If a SSA is present, answer the following:

	<u>Yes</u>	<u>No</u>
Is the Project in the St. Joseph Aquifer System?	<input type="checkbox"/>	<input type="checkbox"/>
Is the FHWA/EPA SSA MOU Applicable?	<input type="checkbox"/>	<input type="checkbox"/>
Initial Groundwater Assessment Required?	<input type="checkbox"/>	<input type="checkbox"/>
Detailed Groundwater Assessment Required?	<input type="checkbox"/>	<input type="checkbox"/>

Remarks:

**Sole Source Aquifer**  
 The project is located in Harrison County, which is not located within the area of the St. Joseph Sole Source Aquifer, the only legally designated sole source aquifer in the state of Indiana. Therefore, the FHWA/EPA Sole Source Aquifer Memorandum of Understanding (MOU) is not applicable to this project. Therefore, a detailed groundwater assessment is not needed, and no impacts are expected.

**Wellhead Protection Area and Source Water**  
 The Indiana Department of Environmental Management's Wellhead Proximity Determinator website (<http://www.in.gov/idem/cleanwater/pages/wellhead/>) was accessed on June 9, 2020 by GAI. This project is not located within a Wellhead Protection Area or Source Water Area.

**Water Wells**  
 The Indiana Department of Natural Resources Water Well Record Database website (<https://www.in.gov/dnr/water/3595.htm>) was accessed on October 22, 2019 by GAI. The nearest well is located approximately 0.21 mile southwest of the project area. The features will not be affected because of the proximity of the well from the project area. Therefore, no impacts are expected. Should it be determined during the right-of-way phase that these wells are affected, a cost to cure will likely be included in the appraisal to restore the wells.

**Urban Area Boundary**  
 Based on a desktop review of the INDOT MS4 website (<https://entapps.indot.in.gov/MS4/>) by GAI on October 22, 2019, and the RFI report; this project is not located in an Urban Area Boundary location. No impacts are expected.

**Public Water System(s)**  
 Based on a desktop review, a site visit on September 19, 2017 by GAI, and the aerial map of the project area (Appendix B, page B3), no public water systems were identified. Therefore, no impacts are expected.

<b>Flood Plains</b>	<u>Presence</u>	<u>Impacts</u>	
		<u>Yes</u>	<u>No</u>
Longitudinal Encroachment	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Transverse Encroachment	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Project located within a regulated floodplain	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Homes located in floodplain within 1000' up/downstream from project	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Discuss impacts according to classification system described in the "Procedural Manual for Preparing Environmental Studies".  
 Remarks: Based on a desktop review of The Indiana Department of Natural Resources Indiana Floodway Information

## Indiana Department of Transportation

County Harrison Route SR-11 Des. No. 1600486

Portal website (<http://dnrmaps.dnr.in.gov/appsphp/fdms/>) by GAI on September 14, 2017 and the RFI report; this project is located in a regulatory floodplain as determined from approved IDNR floodplain maps (Appendix F, page F13). An early coordination letter was sent on September 19, 2019 to the local Floodplain Administrator. The floodplain administrator did not respond within the 30-day time frame.

This project qualifies as a Category 4 per the INDOT CE Manual. No homes are located within the base floodplain within 1,000 feet upstream and no homes are located within the base floodplain within 1,000 feet downstream. The proposed structure will have an effective capacity such that backwater surface elevations are not expected to significantly increase. As a result, there will be no significant adverse impacts on natural and beneficial floodplain values; no significant change in flood risks; and no significant increase in potential for interruption or termination of emergency service or emergency evacuation routes. Therefore, it has been determined that this encroachment is not significant.

**Farmland**

Agricultural Lands  
Prime Farmland (per NRCS)

Presence

Impacts

Yes	No
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>

<input type="checkbox"/>
<input type="checkbox"/>

Total Points (from Section VII of CPA-106/AD-1006\* \_\_\_\_\_  
\*If 160 or greater, see CE Manual for guidance.

See CE Manual for guidance to determine which NRCS form is appropriate for your project.

Remarks:

Based on a desktop review, a site visit on September 19, 2017 by GAI, and the aerial map of the project area (Appendix B, page B3), there is no land that meets the definition of farmland under the Farmland Protection Policy Act (FPPA) within or adjacent to the project area. The requirements of the FPPA do not apply to this project; therefore, no impacts are expected. An early coordination letter was sent on October 4, 2017 (Appendix C, pages C1 to C2) to Natural Resources Conservation Services (NRCS). The NRCS responded on October 4, 2017 (Appendix C, page C14) stating that the proposed project would not cause a conversion of prime farmland.

## Indiana Department of Transportation

County Harrison

Route SR-11

Des. No. 1600486

**SECTION C – CULTURAL RESOURCES**

	Category	Type	INDOT Approval Dates	N/A
Minor Projects PA Clearance	B	4 & 12	February 7, 2020	N/A

Eligible and/or Listed  
Resource Present

**Results of Research**

Archaeology	
NRHP Buildings/Site(s)	
NRHP District(s)	
NRHP Bridge(s)	

**Project Effect**

No Historic Properties Affected       No Adverse Effect       Adverse Effect

Documentation  
Prepared

**Documentation** (mark all that apply)

		ES/FHWA Approval Date(s)	SHPO Approval Date(s)
Historic Properties Short Report	<input type="checkbox"/>		
Historic Property Report	<input type="checkbox"/>		
Archaeological Records Check/ Review	<input type="checkbox"/>		
Archaeological Phase Ia Survey Report	X	February 7, 2020	N/A
Archaeological Phase Ic Survey Report	<input type="checkbox"/>		
Archaeological Phase II Investigation Report	<input type="checkbox"/>		
Archaeological Phase III Data Recovery	<input type="checkbox"/>		
APE, Eligibility and Effect Determination	<input type="checkbox"/>		
800.11 Documentation	<input type="checkbox"/>		

Memorandum of Agreement (MOA)       **MOA Signature Dates** (List all signatories)

*Describe all efforts to document cultural resources, including a detailed summary of the Section 106 process, using the categories outlined in the remarks box. The completion of the Section 106 process requires that a Legal Notice be published in local newspapers. Please indicate the publication date, name of paper(s) and the comment period deadline. Likewise include any further Section 106 work which must be completed at a later date, such as mitigation or deep trenching.*

Remarks: On February 7, 2020 the INDOT Cultural Resource Office (CRO) determined that this project falls within the guidelines of Category B, Types 4 and 12 and Category A, Type 9 under the Minor Projects Programmatic Agreement, (Appendix D, pages D1 to D4). No further consultation is required.

Category B, Type 4 includes the installation of safety appurtenances. Category B, Type 12 includes superstructure replacement or widening and bridge replacement. Category A, Type 9 includes installation, repair, or replacement of erosion control measures.

An archaeological survey was required as part of the project takes place in undisturbed soils. The archeological survey concluded that no archeological resources/sites exists within the project area and it recommended that the project be allowed to proceed as planned (Appendix D, pages D7 to D8). No further consultation is required. This completes the Section 106 process and the responsibilities of the FHWA under Section 106 have been fulfilled.

## Indiana Department of Transportation

County Harrison

Route SR-11

Des. No. 1600486

<b>SECTION D – SECTION 4(f) RESOURCES/ SECTION 6(f) RESOURCES</b>
---

**Section 4(f) Involvement** (mark all that apply)

**Parks & Other Recreational Land**

- Publicly owned park
- Publicly owned recreation area
- Other (school, state/national forest, bikeway, etc.)

Presence


Use

Yes	No

Evaluations

Prepared

- Programmatic Section 4(f)\*
- “De minimis” Impact\*
- Individual Section 4(f)


FHWA

Approval date

--

**Wildlife & Waterfowl Refuges**

- National Wildlife Refuge
- National Natural Landmark
- State Wildlife Area
- State Nature Preserve

Presence


Use

Yes	No

Evaluations

Prepared

- Programmatic Section 4(f)\*
- “De minimis” Impact\*
- Individual Section 4(f)


FHWA

Approval date

--

**Historic Properties**

- Sites eligible and/or listed on the NRHP

Presence

--

Use

Yes	No

Evaluations

Prepared

- Programmatic Section 4(f)\*
- “De minimis” Impact\*
- Individual Section 4(f)


FHWA

Approval date

--

*\*FHWA approval of the environmental document also serves as approval of any Section 4f Programmatic and/or De minimis evaluation(s) discussed below.*

*Discuss Programmatic Section 4(f) and “de minimis” Section 4(f) impacts in the remarks box below. Individual Section 4(f) documentation must be separate Draft and Final documents. For further discussions on Programmatic, “de minimis” and Individual Section 4(f) evaluations please refer to the “Procedural Manual for the Preparation of Environmental Studies”. Discuss proposed alternatives that satisfy the requirements of Section 4(f).*

Remarks:

Section 4(f) of the U.S. Department of Transportation Act of 1966 prohibits the use of certain public and historic lands for federally funded transportation facilities unless there is no feasible and prudent alternative. The law applies to significant publicly owned parks, recreation areas, wildlife / waterfowl refuges, and NRHP eligible or listed historic properties regardless of ownership. Lands subject to this law are considered Section 4(f) resources.

Based on a desktop review, a site visit on September 19, 2017, by GAI, the aerial map of the project area

## Indiana Department of Transportation

County Harrison Route SR-11 Des. No. 1600486

(Appendix B, page B3), and the RFI report (Appendix E, pages E1 to E16) there are no 4(f) resources located within the 0.5 mile search radius. There are no Section 4(f) resources within or adjacent to the project area. Therefore, no use is expected.

**Section 6(f) Involvement**

Presence

Use

Yes

No

**Section 6(f) Property**




*Discuss proposed alternatives that satisfy the requirements of Section 6(f). Discuss any Section 6(f) involvement.*

Remarks:

The U.S. Land and Water Conservation Fund Act of 1965 established the Land and Water Conservation Fund (LWCF), which was created to preserve, develop, and assure accessibility to outdoor recreation resources. Section 6(f) of this Act prohibits conversion of lands purchased with LWCF monies to a non-recreation use.

A review of 6(f) properties on the Land and Water Conservation Fund (LWCF) website at <https://www.lwcfcoalition.com/tools> revealed a total of 11 properties in Harrison County (Appendix I, page I1). In addition to the LWCF website review, IDNR's Division of Outdoor Recreation list at [https://www.in.gov/indot/files/LWCF%20Indiana%20County%20List\\_02-25-2020.pdf](https://www.in.gov/indot/files/LWCF%20Indiana%20County%20List_02-25-2020.pdf) was also reviewed (Appendix I, page I-2). This list revealed 15 properties within Harrison County. None of these properties are located within or adjacent to the project area. Therefore, there will be no impacts to 6(f) resources as a result of this project.

**SECTION E – Air Quality**

**Air Quality**

**Conformity Status of the Project**

Is the project in an air quality non-attainment or maintenance area?

Yes

No

If YES, then:

Is the project in the most current MPO TIP?



Is the project exempt from conformity?



If the project is NOT exempt from conformity, then:

Is the project in the Transportation Plan (TP)?



Is a hot spot analysis required (CO/PM)?



Level of MSAT Analysis required?

Level 1a  Level 1b  Level 2  Level 3  Level 4  Level 5

Remarks:

The FY 2020-2024 STIP is listed based on the lead DES number in the contract. The lead DES number for this contract is 1600485. The FY 2020-2024 STIP includes DES number 1600486 by reference with the contract number B-39896 (Appendix G, page G1).

This project is located in Harrison County, which is currently in attainment for all criteria pollutants according to IDEM's website: <https://www.in.gov/idem/airquality/2339.htm>. Therefore, the conformity procedures of 40 CFR Part 93 do not apply.

This project is of a type qualifying as a categorical exclusion (Group 1) under 23 CFR 771.117(c), or exempt under the Clean Air Act conformity rule under 40 CFR 93.126, and as such, a Mobile Source Air Toxics analysis is not required.

## Indiana Department of Transportation

County Harrison

Route SR-11

Des. No. 1600486

### SECTION F - NOISE

**Noise** **Yes**  **No**   
 Is a noise analysis required in accordance with FHWA regulations and INDOT's traffic noise policy?

	No	Yes/ Date
<b>ES Review of Noise Analysis</b>	<b>X</b>	

Remarks: This project is a Type III project. In accordance with 23 CFR 772 and the current *Indiana Department of Transportation Traffic Noise Analysis Procedure*, this action does not require a formal noise analysis.

### SECTION G – COMMUNITY IMPACTS

	Yes	No
<b>Regional, Community &amp; Neighborhood Factors</b>		
Will the proposed action comply with the local/regional development patterns for the area?	<b>X</b>	
Will the proposed action result in substantial impacts to community cohesion?		<b>X</b>
Will the proposed action result in substantial impacts to local tax base or property values?		<b>X</b>
Will construction activities impact community events (festivals, fairs, etc.)?		<b>X</b>
Does the community have an approved transition plan?	<b>X</b>	
If No, are steps being made to advance the community's transition plan?		
Does the project comply with the transition plan? (explain in the remarks box)		

Remarks: This project will benefit the community by providing a structurally and hydraulically sufficient structure that will ensure continued passage for motorists over South Fork Buck Creek. The project is not anticipated to impact the tax base for the area or result in a division of the community. There are no long-term, foreseeable economic impacts from the project.

Harrison County has an approved Americans With Disabilities Act Self-Evaluation and Transition Plan (2014). There are no pedestrian facilities being proposed, and pedestrian access is not a part of the purpose and need of the project.

**Indirect and Cumulative Impacts** **Yes**  **No**   
 Will the proposed action result in substantial indirect or cumulative impacts?

Remarks: Indirect impacts are effects which are caused by the action and are later in time or farther removed in distance but are still reasonably foreseeable. Indirect effects may include growth inducing effects and other effects related to induced changes in the pattern of land use, population density, or growth rate. Cumulative impacts affect the environment which result from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency or person undertakes such actions.

There have been no significant effects identified which could be caused by the proposed project and which will emerge in time or father removed in distance with regard to indirect impacts. In addition, there have been no significant effects identified which may induce changes in the pattern of land use, population density or growth rate, or related effects on air and water or other natural systems, including ecosystems. Additionally, with regard to cumulative impacts, no significant impacts on the environment have been identified which could result from the incremental impact of the proposed project when added to other past, present, and reasonably foreseeable future actions. This project involves the replacement of Bridge No. 011-31-06120. Therefore, this project is not likely to cause substantial or cumulative impacts.

## Indiana Department of Transportation

County Harrison Route SR-11 Des. No. 1600486

**Public Facilities & Services**

Will the proposed action result in substantial impacts on health and educational facilities, public and private utilities, emergency services, religious institutions, airports, public transportation or pedestrian and bicycle facilities? *Discuss how the maintenance of traffic will affect public facilities and services.*

Yes	No
<input type="checkbox"/>	<input checked="" type="checkbox"/>

Remarks:

Based on a desktop review, a site visit on September 19, 2017 by GAI, the aerial map of the project area (Appendix B, page B3), and the RFI report (Appendix E, pages E1 to E16) there are no public facilities within the 0.5 mile search radius. There are no public facilities within or adjacent to the project area. Access to all properties will be maintained during construction. Therefore, no impacts are expected.

It is the responsibility of the project sponsor to notify school corporations and emergency services at least two weeks prior to any construction that would block or limit access.

**Environmental Justice (EJ) (Presidential EO 12898)**

During the development of the project were EJ issues identified?

Yes	No
<input checked="" type="checkbox"/>	<input type="checkbox"/>

Does the project require an EJ analysis?

If YES, then:

Are any EJ populations located within the project area?

Yes	No
<input type="checkbox"/>	<input checked="" type="checkbox"/>

Will the project result in adversely high or disproportionate impacts to EJ populations?

Yes	No
<input type="checkbox"/>	<input checked="" type="checkbox"/>

Remarks:

Under FHWA Order 6640.23A, FHWA and the project sponsor, as a recipient of funding from FHWA, are responsible to ensure that their programs, policies, and activities do not have a disproportionately high and adverse effect on minority or low-income populations. Per the current INDOT Categorical Exclusion Manual, an Environmental Justice (EJ) Analysis is required for any project that has two or more relocations or 0.5 acre of additional permanent right-of-way. The project will require the acquisition of 0.911 acre of additional permanent right-of-way. Therefore, an EJ Analysis is required.

Potential EJ impacts are detected by locating minority and low-income populations relative to a reference population to determine if populations of EJ concern exists and whether there could be disproportionately high and adverse impacts to them. The reference population may be a county, city or town and is called the community of comparison (COC). In this project, the COC is Harrison County, Indiana. The community that overlaps the project area is called the affected community (AC). In this project, the AC is Census Tract 606. An AC has a population of concern for EJ if the population is more than 50% minority or low-income or if the low-income or minority population is 125% of the COC. Data from the US Census Bureau, 2013 – 2017 American Community Survey 5 Year Estimates, was obtained from the US Census Bureau Website <https://factfinder.census.gov/> on January 27, 2020 by GAI. The data collected for minority and low-income populations within the AC are summarized in the below table.

Table: Minority and Low-Income Data (U.S. Census Bureau, 2013–2017 American Community Survey 5–Year Estimates)		
	COC - (Harrison County, Indiana)	AC-1 - (Census Tract 606, Harrison County, Indiana)
Percent Minority	(4.34%)	(3.62%)
125% of COC	(5.42 %)	AC < 125% COC
EJ Population of Concern		No
Percent Low-Income	(12.87%)	(8.55%)
125% of COC	(16.08 %)	AC < 125% COC
EJ Population of Concern		No

AC-1, Census Tract 606 has a percent minority of (3.62%) which is below 50% and is below the 125% COC threshold. Therefore, this AC does not contain minority population of EJ concern.

AC-1, Census Tract 606 has a percent low-income of (8.55%) which is below 50% and is below the 125% COC threshold. Therefore, this AC does not contain low-income populations of EJ concern.

**Conclusion**

The census data sheets, map, and calculations can be found in Appendix (Appendix H, pages H1 to H4). No

## Indiana Department of Transportation

County Harrison Route SR-11 Des. No. 1600486

further environmental justice analysis is warranted.

**Relocation of People, Businesses or Farms**

Will the proposed action result in the relocation of people, businesses or farms?  
 Is a Business Information Survey (BIS) required?  
 Is a Conceptual Stage Relocation Study (CSRS) required?  
 Has utility relocation coordination been initiated for this project?

Yes	No
<input type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="checkbox"/>	<input checked="" type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>

Number of relocations:      Residences:   0        Businesses:   0        Farms:   0        Other:   0  

*If a BIS or CSRS is required, discuss the results in the remarks box.*

Remarks: No relocations of people, businesses, or farms will take place as a result of this project.

**SECTION H – HAZARDOUS MATERIALS & REGULATED SUBSTANCES**

**Hazardous Materials & Regulated Substances** (Mark all that apply)

Red Flag Investigation  
 Phase I Environmental Site Assessment (Phase I ESA)  
 Phase II Environmental Site Assessment (Phase II ESA)  
 Design/Specifications for Remediation required?

Documentation

<input checked="" type="checkbox"/>
<input type="checkbox"/>
<input type="checkbox"/>
<input type="checkbox"/>

	No	Yes/ Date
<b>ES Review of Investigations</b>	<input type="checkbox"/>	August 7, 2018

*Include a summary of findings for each investigation.*

Remarks: Based on a review of GIS and available public records, a Red Flag Investigation (RFI) was approved on August 7, 2018 by INDOT SAM Unit (Appendix E, pages E1 to E16). One Leaking Underground Storage Tank (LUST) site is located within 0.5 mile of the project area; however, no hazmat sites were identified in or within 0.5 mile of the project area that will impact the project. The nearest LUST is 0.49 miles from the project area. No impacts are expected. Further investigation for hazardous material concerns is not required at this time.

A review of RFI resources took place again on July 10, 2019 and no substantive changes were found. Please refer to Appendix E, pages E17 to E18 for the email correspondence with the INDOT SAM Unit, stating that an addendum report for the RFI is not necessary for this project.

## Indiana Department of Transportation

County Harrison

Route SR-11

Des. No. 1600486

<b>SECTION I – PERMITS CHECKLIST</b>
--------------------------------------

**Permits** (mark all that apply)

**Likely Required**

**Army Corps of Engineers (404/Section10 Permit)**

Individual Permit (IP)	<input type="checkbox"/>
Nationwide Permit (NWP)	<input type="checkbox"/>
Regional General Permit (RGP)	<input checked="" type="checkbox"/>
Pre-Construction Notification (PCN)	<input type="checkbox"/>
Other	<input type="checkbox"/>
Wetland Mitigation required	<input type="checkbox"/>
Stream Mitigation required	<input type="checkbox"/>

**IDEM**

Section 401 WQC	<input checked="" type="checkbox"/>
Isolated Wetlands determination	<input type="checkbox"/>
Rule 5	<input type="checkbox"/>
Other	<input type="checkbox"/>
Wetland Mitigation required	<input type="checkbox"/>
Stream Mitigation required	<input type="checkbox"/>

**IDNR**

Construction in a Floodway	<input checked="" type="checkbox"/>
Navigable Waterway Permit	<input type="checkbox"/>
Lake Preservation Permit	<input type="checkbox"/>
Other	<input type="checkbox"/>
Mitigation Required	<input type="checkbox"/>
<b>US Coast Guard Section 9 Bridge Permit</b>	<input type="checkbox"/>
<b>Others (Please discuss in the remarks box below)</b>	<input type="checkbox"/>

Remarks:

This project will likely require an IDEM 401 Water Quality Certification (WQC), a USACE 404 Regional General Permit (RGP) for impacts to jurisdictional Waters of the U.S, and an IDNR Construction in a Floodway (CIF) permit.

An early coordination letter was sent to the IDNR-DFW on October 4, 2017 (Appendix C, pages C1 to C2). The IDNR-DFW indicated in their letter dated November 3, 2017 (Appendix C, pages C16 to C19), that the project would require formal IDNR approval for construction in a floodway pursuant to the Flood Control Act unless it qualifies for a bridge exemption. This project does not qualify for a bridge exemption.

Applicable recommendations provided by IDNR and IDEM are included in the *Environmental Commitments* section of this document. If permits are found to be necessary, the conditions of the permit will be requirements of the project and will supersede these recommendations.

It is the responsibility of the project sponsor to identify and obtain all required permits.

# Indiana Department of Transportation

County Harrison

Route SR-11

Des. No. 1600486

## SECTION J- ENVIRONMENTAL COMMITMENTS

The following information should be provided below: List all commitments, name of agency/organization requesting the commitment(s), and indicating which are firm and which are for further consideration. The commitments should be numbered.

Remarks:

**Firm:**

1. If the scope of work or permanent or temporary right-of-way amounts change, the INDOT Environmental Services Division (ESD) and the INDOT District Environmental Section will be contacted immediately. (INDOT ESD and INDOT Seymour District)
2. It is the responsibility of the project sponsor to notify school corporations and emergency services at least two weeks prior to any construction that would block or limit access. (INDOT ESD)
3. Bridge No. 011-31-06120 has shown evidence of use (i.e. nests) by a bird species protected under the Migratory Bird Treaty Act (MBTA) during the July 7, 2018 inspection. Avoidance and minimization measures must be implemented prior to the start of and during the nesting season. Nests without eggs or young should be removed prior to construction during the non-nesting season (September 8 – April 30) and during the nesting season if no eggs or young are present. Nests with eggs or young cannot be removed or disturbed during the nesting season (May 1 – September 7). Nests with eggs or young should be screened or buffered from active construction. Details of the required procedures are outlined in the "Potential Migratory Bird on Structure USP". (INDOT ESD)
4. General AMM 1: Ensure all operators, employees, and contractors working in areas of known or presumed bat habitat are aware of all FHWA/FRA/FTA (Transportation Agencies) environmental commitments, including all applicable AMM's. (USFWS)
5. Hibernacula AMM 1: For projects located within karst areas, on-site personnel will use best management practices, secondary containment measures, or other standard spill prevention and countermeasures to avoid impacts to possible bat hibernacula. Where practicable, a 300 foot buffer will be employed to separate fueling areas and other major containment risk activities from caves, sinkholes, losing streams, and springs in karst topography. (USFWS)
6. Lighting AMM 1: Direct all temporary lighting away from suitable habitat during the active season. (USFWS)
7. Tree Removal AMM 1: Modify all phases/aspects of the project (e.g., temporary work areas, alignments) to avoid tree removal. (USFWS)
8. Tree Removal AMM 2: Apply time of year restrictions for tree removal (October 1 through March 30) when bats are not likely to be present, or limit tree removal to 10 or fewer trees per project at any time of year within 100 feet of existing road/rail surface and outside of documented roosting/foraging habitat or travel corridors; visual emergence survey must be conducted with no bats observed. (USFWS)
9. Tree Removal AMM 3: Ensure tree removal is limited to that specified in project plans and ensure that contractors understand clearing limits and how they are marked in the field (e.g., install bright colored flagging/fencing prior to any tree clearing to ensure contractors stay within clearing limits. (USFWS)
10. Tree Removal AMM 4: Do not remove documented Indiana bat or NLEB roosts that are still suitable for roosting, or trees within 0.25 miles of roosts, or documented foraging habitat any time of year. (USFWS)

**For Further Consideration:**

11. Riprap must not be placed in the active thalweg channel or placed in the streambed in a manner that precludes fish or aquatic organism passage (riprap must not be placed above the existing streambed elevation). Riprap may be used only at the toe of the sideslopes up to the ordinary high water mark (OHWM). The banks above the OHWM must be restored, stabilized, and revegetated using geotextiles and a mixture of grasses, sedges, wildflowers, shrubs, and trees native to [site indicated] and specifically for stream bank/floodway stabilization purposes as soon as possible upon completion. (IDNR-DFW)
12. Impacts to non-wetland forest of one (1) acre or more should be mitigated at a minimum 2:1 ratio. If less than one acre of non-wetland forest is removed in a rural setting, replacement should be at a 1:1 ratio based on area. Impacts to nonwetland forest under one (1) acre in an urban setting should be mitigated by planting five trees, at least 2 inches in diameter-at-breast height (dbh), for each tree which is removed that is 10 inches dbh or greater (5:1 mitigation based on the number of large trees). (IDNR-DFW)
13. Do not cut any trees suitable for Indiana bat or Northern Long-eared bat roosting from April 1 through

**Indiana Department of Transportation**

County Harrison

Route SR-11

Des. No. 1600486

- September 30. [RSP 107-B-040] (IDNR-DFW)
14. Do not excavate in the low flow area except for the placement of piers, foundations, and riprap, or removal of the old structure. (IDNR-DFW)
  15. Do not construct any temporary runarounds, access bridges, causeways, cofferdams, diversions, or pumparounds. (IDNR-DFW)
  16. Use minimum average 6 inch graded riprap stone extended below the normal water level to provide habitat for aquatic organisms in the voids. (IDNR-DFW)
  17. Plant native hardwood trees along the top of the bank and right-of-way to replace the vegetation destroyed during construction. (IDNR-DFW)
  18. Post "Do Not Mow or Spray" signs along the right-of-way. (IDNR-DFW)

## Indiana Department of Transportation

County Harrison

Route SR-11

Des. No. 1600486

<b>SECTION K- EARLY COORDINATION</b>
--------------------------------------

*Please list the date coordination was sent and all agencies that were contacted as a part of the development of this Environmental Study. Also, include the date of their response or indicate that no response was received. INDOT and FHWA are automatically considered early coordination participants and should only be listed if a response is received.*

Remarks:

Agency	Coordination Sent	Response Received	Appendix Page(s)
U.S. Fish Wildlife Service	10/4/2017	10/4/2017	C20 to C21
Natural Resources Conservation Service	10/4/2017	10/4/2017	C14
Department of the Army, Louisville District, Corps of Engineers	10/4/2017	No Response	-
National Park Service, Midwest Regional Office	10/4/2017	No Response	-
U.S. Department of Housing & Urban Development, Chicago Regional Office	10/4/2017	No Response	-
Indiana Geological Survey, Environmental Geology Section	10/6/2017	10/6/2017	C11 to C13
IDNR, Division of Fish and Wildlife	10/4/2017	11/3/2017	C16 to C19
IDEM	10/4/2017	10/4/2017	C6 to C9
INDOT Aviation Section	10/4/2017	10/6/2017	C15
INDOT, Public Hearings	10/4/2017	No Response	-
Harrison County Surveyor	10/4/2017	No Response	-
Harrison County Highway Department	10/4/2017	10/5/2017	C22
Floodplain Administrator	9/19/2019	No Response	-
IDEM, Office of Water Quality	9/19/2019	10/22/2019	C10

# Table of Appendices

## Appendix A: INDOT Supporting Documentation

Threshold Chart.....	A1
----------------------	----

## Appendix B: Graphics

Maps of the Project Area.....	B1
Photo Key Map.....	B4
Photographs of the Project Area.....	B5
Project Plans.....	B8

## Appendix C: Early Coordination

Early Coordination Example Letter.....	C1
Early Coordination Distribution List.....	C3
Notice of Entry Letters.....	C4
Early Coordination Responses.....	C6
USFWS Official Species List.....	C23
INDOT Bat Database Email Correspondence.....	C30
USFWS Concurrence Verification Letter.....	C32
USFWS Concurrence Email for NLAA.....	C47
USFWS Gray Bat NLAA Determination.....	C48
USFWS Bridge/Structure Assessment Form.....	C52

## Appendix D: Section 106 Consultation

MPPA Determination.....	D1
INDOT CRO Correspondence.....	D5
Phase 1a Archaeological Report.....	D7

## Appendix E: Red Flag and Hazardous Materials

Red Flag Investigation.....	E1
INDOT SAM Correspondence.....	E17

## Appendix F: Water Resources

Wetland Delineation and Stream Identification Report.....	F1
INDOT EWPO Approval Email.....	F21

## Appendix G: Air Quality

Statewide Transportation Improvement Plan (STIP), approved on 07/02/19.....	G1
---	----

## Appendix H: Environmental Justice

EJ Analysis.....	H1
------------------	----

## Appendix I: Additional Studies

DOI Land & Water Conservation Fund Grants.....	I1
IDNR-DOR LWCF Property List.....	I2

# Appendix A

## INDOT Supporting Documentation

Item	Appendix Page
Threshold Chart	A1

## Categorical Exclusion Level Thresholds

	PCE	Level 1	Level 2	Level 3	Level 4 <sup>1</sup>
<b>Section 106</b>	Falls within guidelines of Minor Projects PA	“No Historic Properties Affected”	“No Adverse Effect”	-	“Adverse Effect” Or Historic Bridge involvement <sup>2</sup>
<b>Stream Impacts</b>	No construction in waterways or water bodies	< 300 linear feet of stream impacts	≥ 300 linear feet of stream impacts	-	Individual 404 Permit
<b>Wetland Impacts</b>	No adverse impacts to wetlands	< 0.1 acre	-	< 1 acre	≥ 1 acre
<b>Right-of-way<sup>3</sup></b>	Property acquisition for preservation only or none	< 0.5 acre	≥ 0.5 acre	-	-
<b>Relocations</b>	None	-	-	< 5	≥ 5
<b>Threatened/Endangered Species (Species Specific Programmatic for Indiana bat &amp; northern long eared bat)</b>	“No Effect”, “Not likely to Adversely Affect” (Without AMMs <sup>4</sup> or with AMMs required for all projects <sup>5</sup> )	“Not likely to Adversely Affect” (With any other AMMs)	-	“Likely to Adversely Affect”	Project does not fall under Species Specific Programmatic
<b>Threatened/Endangered Species (Any other species)</b>	Falls within guidelines of USFWS 2013 Interim Policy	“No Effect”, “Not likely to Adversely Affect”	-	-	“Likely to Adversely Affect”
<b>Environmental Justice</b>	No disproportionately high and adverse impacts	-	-	-	Potential <sup>6</sup>
<b>Sole Source Aquifer</b>	Detailed Assessment Not Required	-	-	-	Detailed Assessment
<b>Floodplain</b>	No Substantial Impacts	-	-	-	Substantial Impacts
<b>Coastal Zone Consistency</b>	Consistent	-	-	-	Not Consistent
<b>National Wild and Scenic River</b>	Not Present	-	-	-	Present
<b>New Alignment</b>	None	-	-	-	Any
<b>Section 4(f) Impacts</b>	None	-	-	-	Any
<b>Section 6(f) Impacts</b>	None	-	-	-	Any
<b>Added Through Lane</b>	None	-	-	-	Any
<b>Permanent Traffic Alteration</b>	None	-	-	-	Any
<b>Coast Guard Permit</b>	None	-	-	-	Any
<b>Noise Analysis Required</b>	No	-	-	-	Yes
<b>Air Quality Analysis Required</b>	No	-	-	-	Yes <sup>7</sup>
<b>Approval Level</b>	Concurrence by INDOT District Environmental or Environmental Services	Yes	Yes	Yes	Yes
<ul style="list-style-type: none"> <li>• District Env. Supervisor</li> <li>• Env. Services Division</li> <li>• FHWA</li> </ul>				Yes	Yes

<sup>1</sup>Coordinate with INDOT Environmental Services. INDOT will then coordinate with the appropriate FHWA Environmental Specialist.

<sup>2</sup>Any involvement with a bridge processed under the Historic Bridge Programmatic Agreement.

<sup>3</sup>Permanent and/or temporary right-of-way.

<sup>4</sup>AMMs = Avoidance and Mitigation Measures.

<sup>5</sup>AMMs determined by the IPAC decision key to be needed that are listed in the USFWS *User's Guide for the Range-wide Programmatic Consultation for Indiana bat and Northern long-eared bat* as “required for all projects”.

<sup>6</sup>Potential for causing a disproportionately high and adverse impact.

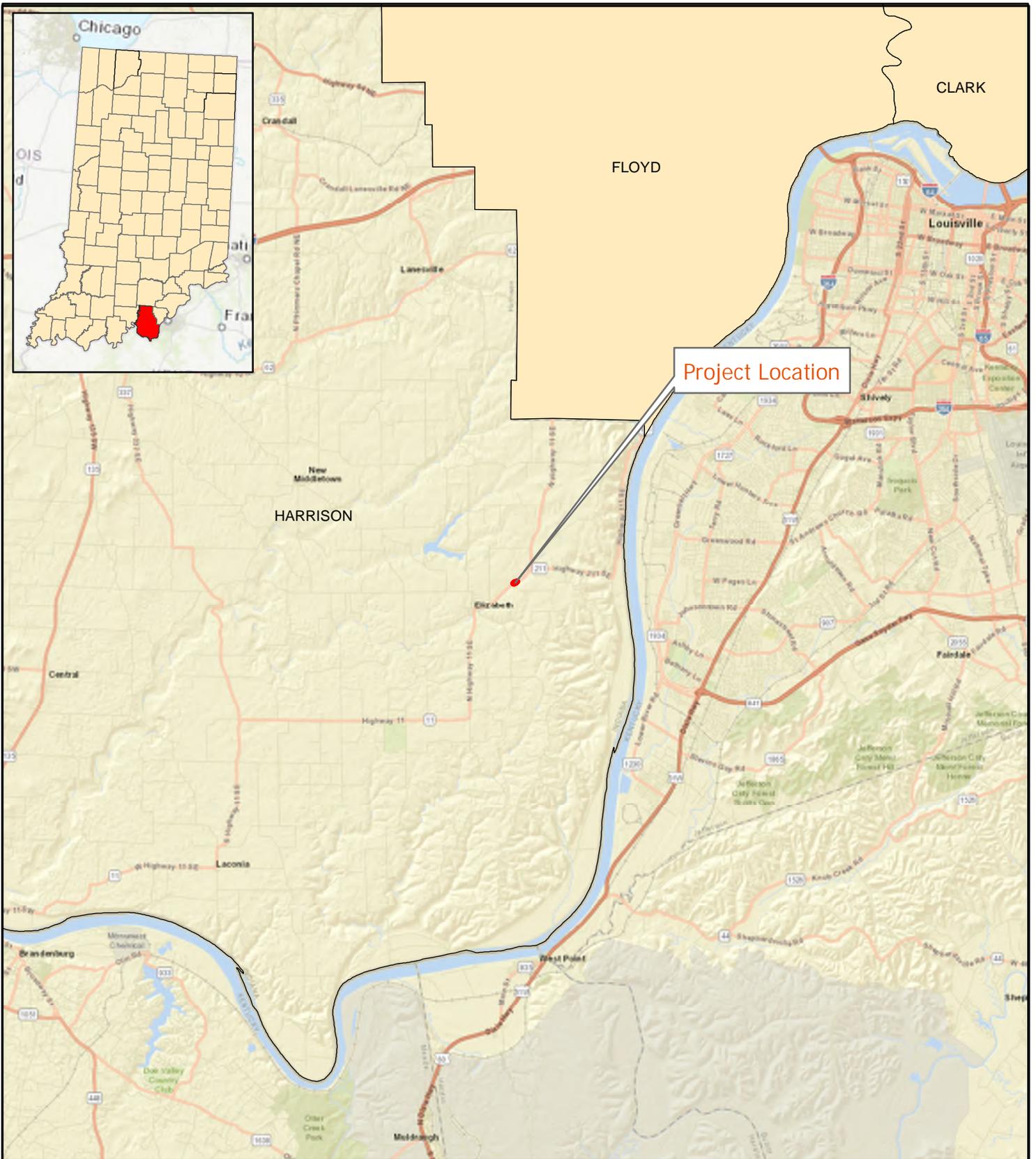
<sup>7</sup>Hot Spot Analysis and/or MSAT Quantitative Emission Analysis.

\*Substantial public or agency controversy may require a higher-level NEPA document.

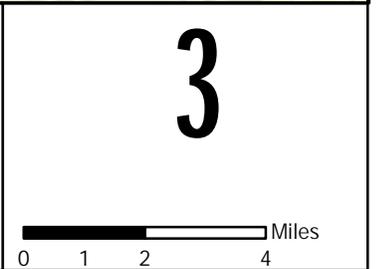
# Appendix B

## Graphics

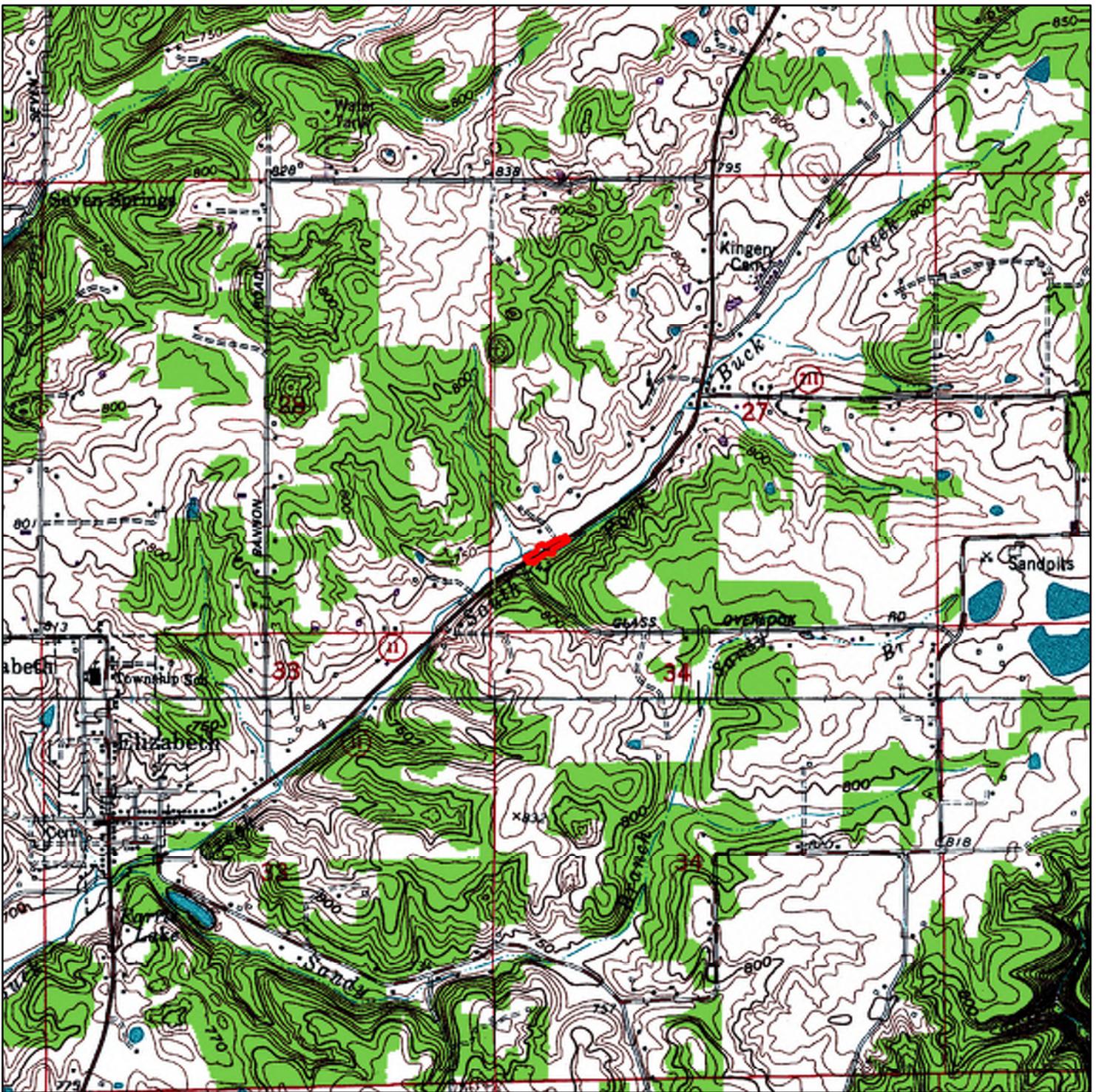
<b>Item</b>	<b>Appendix Page</b>
Maps of the Project Area	B1 to B3
Photo Key Map	B4
Photographs of the Project Area	B5 to B7
Project Plans	B8 to B16



**State Location Map**  
 SR-11 over South Fork Buck Creek  
 Bridge Rehabilitation Project  
 Harrison County, Indiana  
 Des 1600486



Service Layer Credits: Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community



## USGS Topo Map

SR-11 over South Fork Buck Creek  
 Bridge Rehabilitation Project  
 Harrison County, Indiana  
 Des 1600486

 Study Area

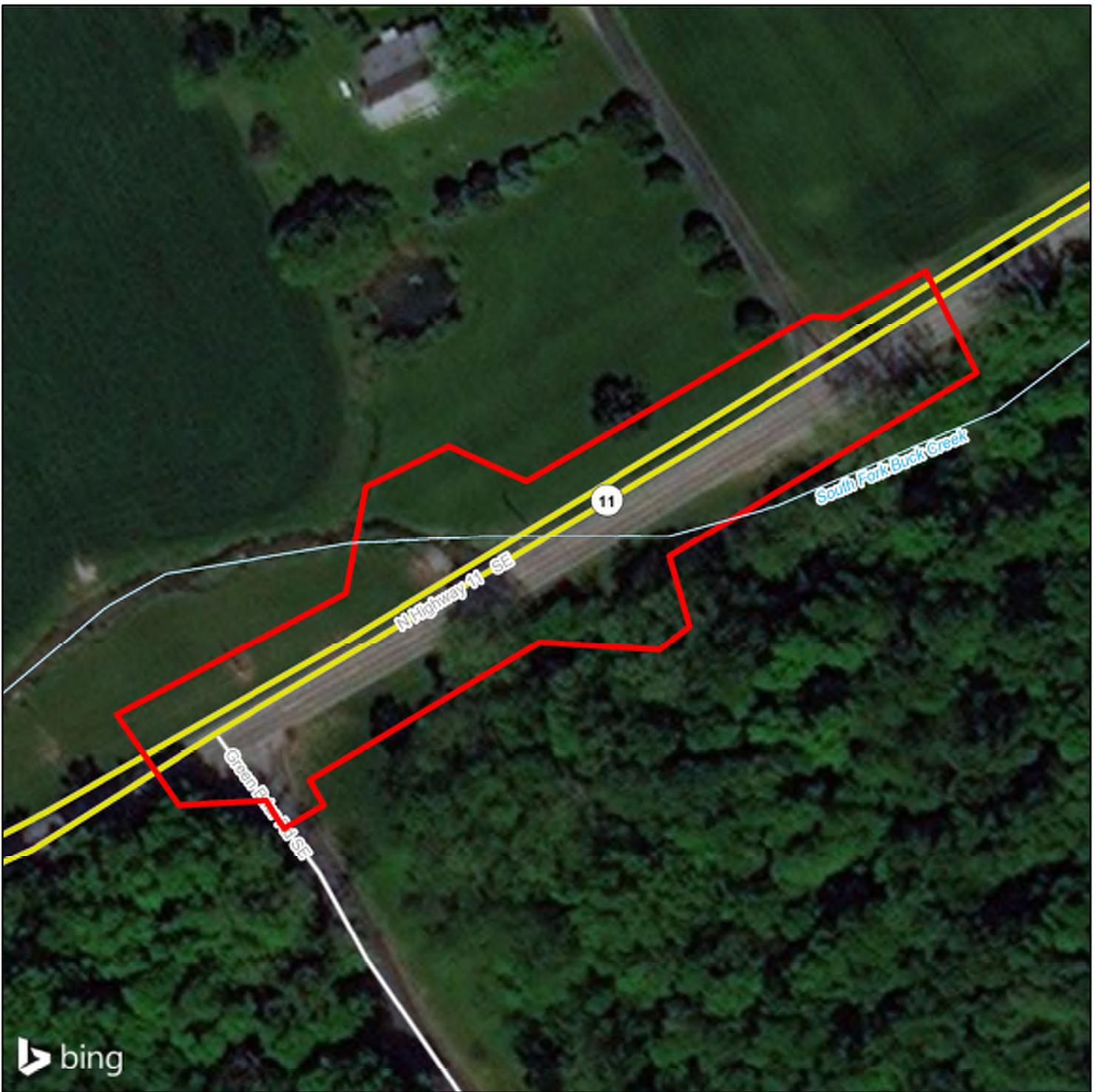


0 800 1,600 3,200 Feet

LANESVILLE USGS 7.5 Minute Topo Map

Service Layer Credits: United States Geological Survey (USGS)

3



## Aerial Location Map

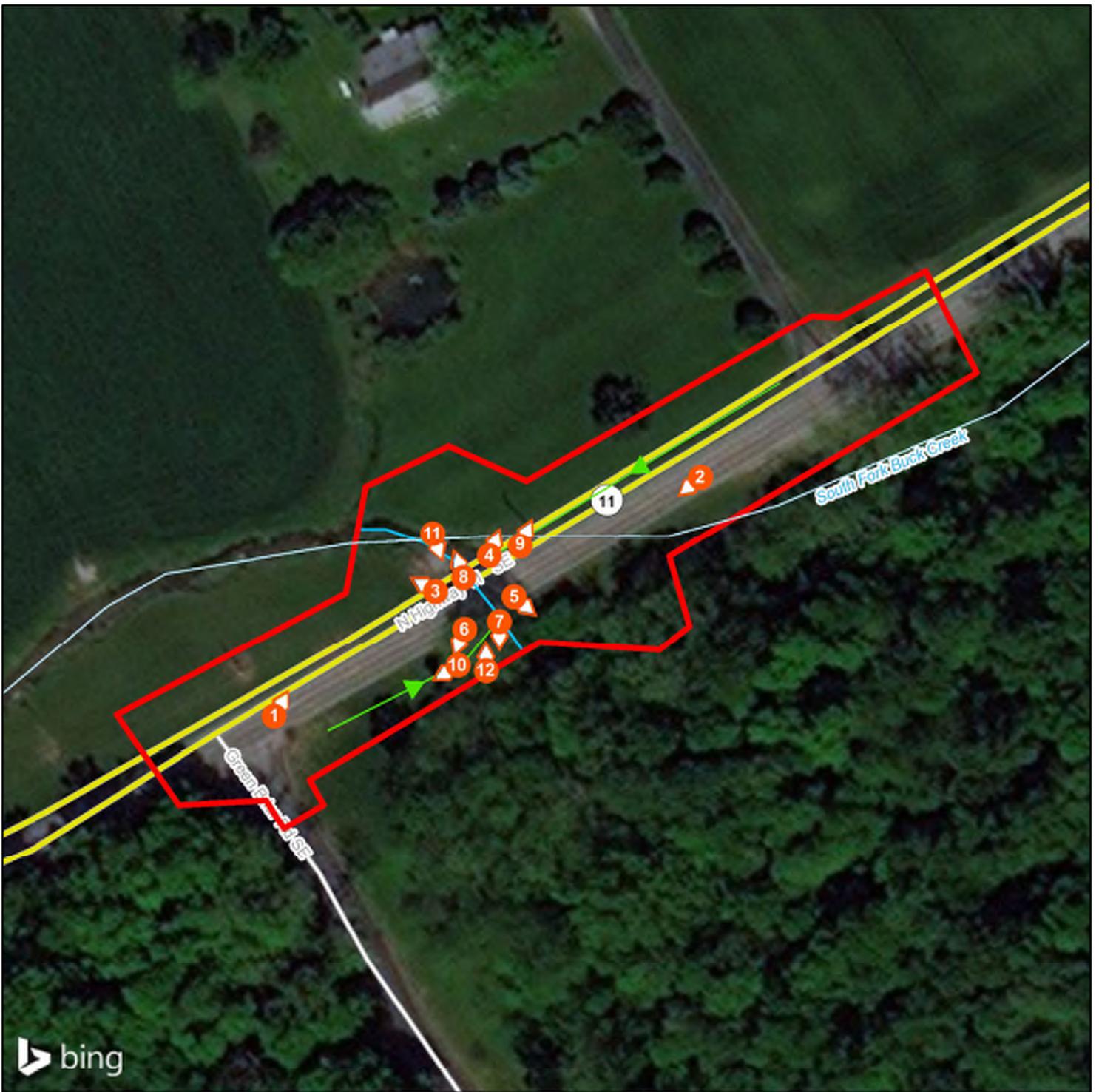
SR-11 over South Fork Buck Creek  
 Bridge Rehabilitation Project  
 Harrison County, Indiana  
 Des 1600486

-  Study Area
-  Interstate
-  State Route
-  US Route
-  Local Road
-  Railroad



Service Layer Credits: INDOT  
 © 2020 Microsoft Corporation © 2019 DigitalGlobe © CNES (2019) Distribution Airbus DS

3



## Photo Location Map

SR-11 over South Fork Buck Creek  
 Bridge Rehabilitation Project  
 Harrison County, Indiana  
 Des 1600486

- |             |                    |
|-------------|--------------------|
| Study Area  | Photo Point        |
| Interstate  | Drainage Feature   |
| State Route | Delineated Streams |
| US Route    |                    |
| Local Road  |                    |
| Railroad    |                    |



Service Layer Credits: INDOT  
 Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community



Photo 1. Looking northeast along SR 11 towards culvert over SF Buck Creek.



Photo 2. Looking southwest along SR 11 towards culvert over SF Buck Creek.



Photo 3. Looking northwest along SF Buck Creek from SR 11.



Photo 4. Looking northeast from SR 11 at culvert carrying SR 11 over SF Buck Creek.



Photo 5. Looking southeast along SF Buck Creek riparian zone from SR 11.



Photo 6. Looking southwest from culvert carrying SR 11 over SF Buck Creek.



Photo 7. Looking south along SF Buck Creek from SR 11.



Photo 8. Looking northwest along SF Buck Creek from SR 11.



Photo 9. Looking northeast at roadside ditch along north side of SR 11.



Photo 10. Looking southwest at roadside ditch along south side of SR 11.



Photo 11. Looking southeast along SF Buck Creek towards culvert carrying SR 11 over SF Buck Creek.



Photo 12. Looking northeast along SF Buck Creek towards culvert carrying SR 11 over SF Buck Creek.

PROJECT	DESIGNATION
1600486	1600486
CONTRACT	BRIDGE FILE
B-39896	011-31-10182

STRUCTURE INFORMATION				
STRUCTURE	TYPE	SPAN AND SKEW	OVER	STATION
011-31-10182	Reinforced Concrete Slab Bridge	1 Span @ 38'-9 7/8" Skew: 15° Lt.	South Fork Buck Creek	Sta. 131+24.00 Line "A"

# INDIANA DEPARTMENT OF TRANSPORTATION



TRAFFIC DATA		
A.A.D.T. (2021)		3180 V.P.D.
A.A.D.T. (2041)		3656 V.P.D.
D.H.V		366 V.P.H.
DIRECTIONAL DISTRIBUTION		50/50 %
TRUCKS		10 % A.A.D.T. 10 % D.H.V.

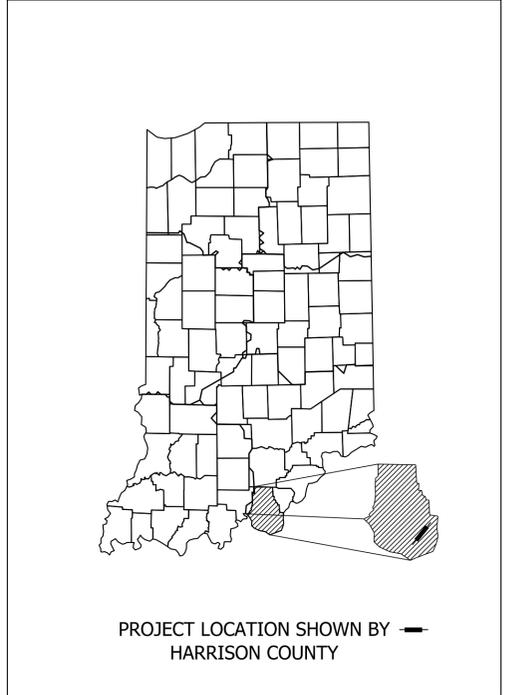
DESIGN DATA	
DESIGN SPEED	50 M.P.H.
PROJECT DESIGN CRITERIA	3R (NON-FREEWAY)
FUNCTIONAL CLASSIFICATION	MAJOR COLLECTOR
RURAL/URBAN	RURAL
TERRAIN	ROLLING
ACCESS CONTROL	NONE

## BRIDGE PLANS

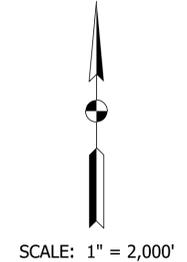
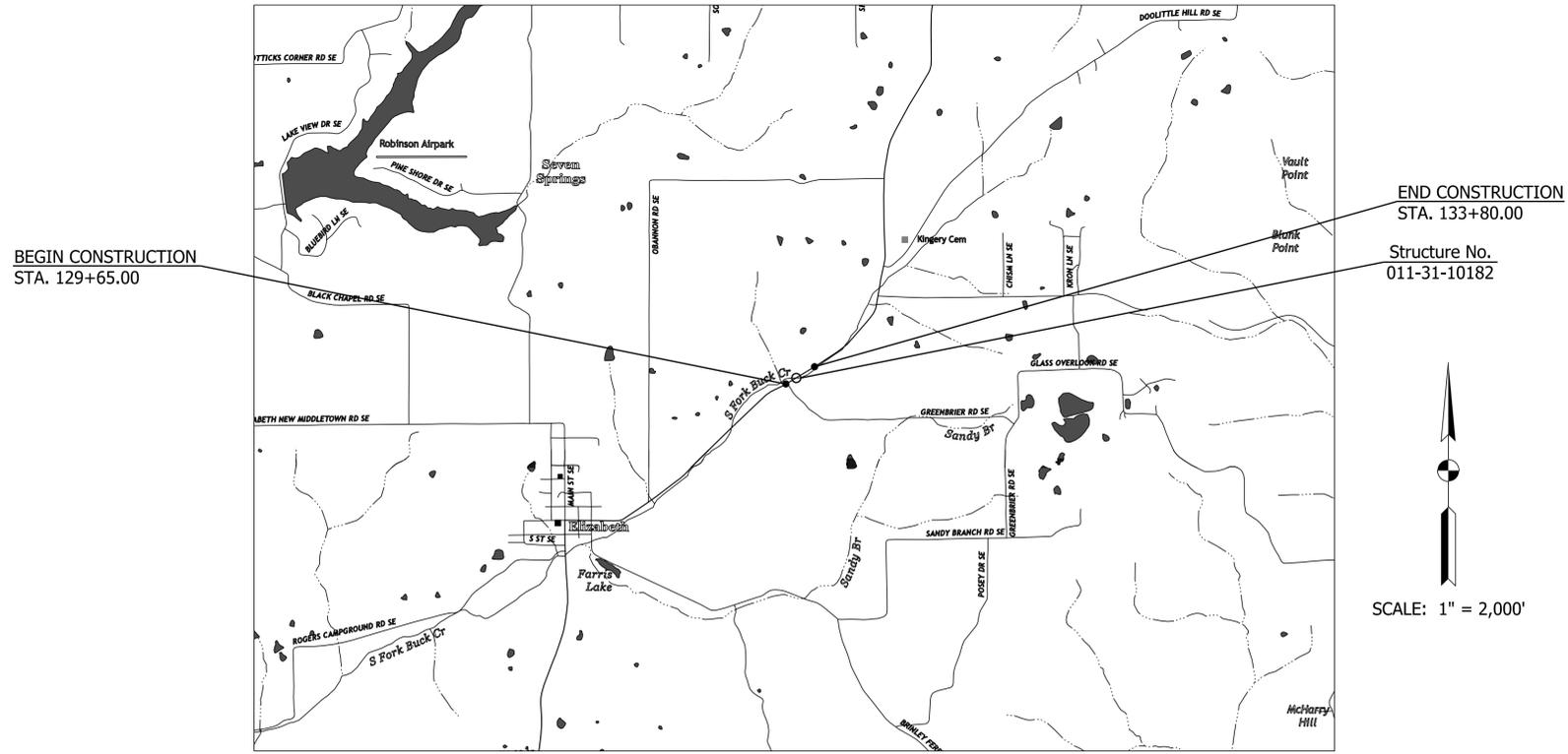
### FOR SPANS OVER 20 FEET

ROUTE: SR 11 AT: RP 19+76  
 PROJECT NO. 1600486 P.E  
 1600486 R/W  
 1600486 CONST.

Bridge Replacement on SR 11 over South Fork Buck Creek located 0.51 miles southwest of SR 211 in Section 27, T-4-S, R-5-E, Posey Township, Harrison County, Indiana



LATITUDE: 38° 07' 47" N	LONGITUDE: 85° 57' 23" W
BRIDGE LENGTH: 0.006 MI.	
ROADWAY LENGTH: 0.158 MI.	
TOTAL LENGTH: 0.164 MI.	
MAX. GRADE: 1.46 %	



HARRISON COUNTY

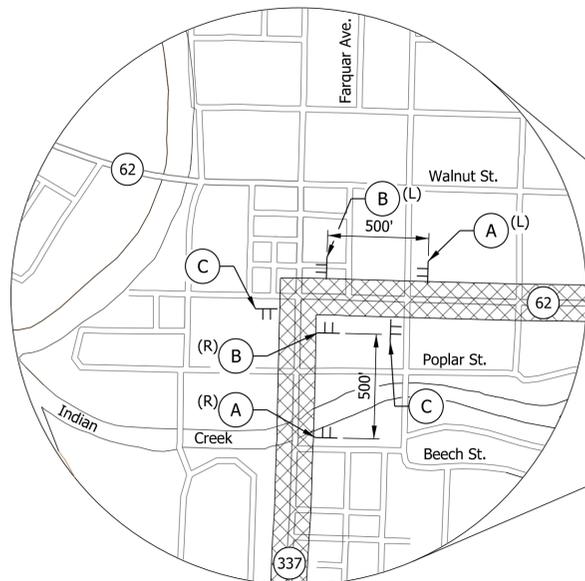
INDIANA DEPARTMENT OF TRANSPORTATION  
STANDARD SPECIFICATIONS DATED 2020  
TO BE USED WITH THESE PLANS

Plot: 9/11/2019 3:49:14 PM By: thornstam Pen: Transportation.tbl

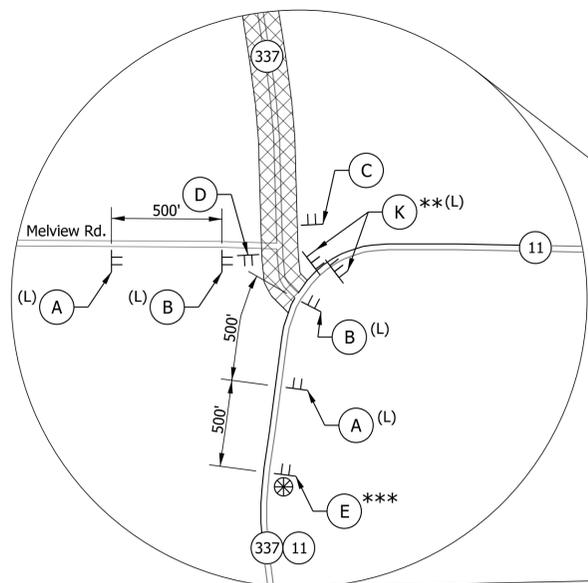


PLANS PREPARED BY:	GAI Consultants Inc.	(317) 436-9150 PHONE NUMBER
CERTIFIED BY:		DATE
APPROVED FOR LETTING:	INDIANA DEPARTMENT OF TRANSPORTATION	DATE

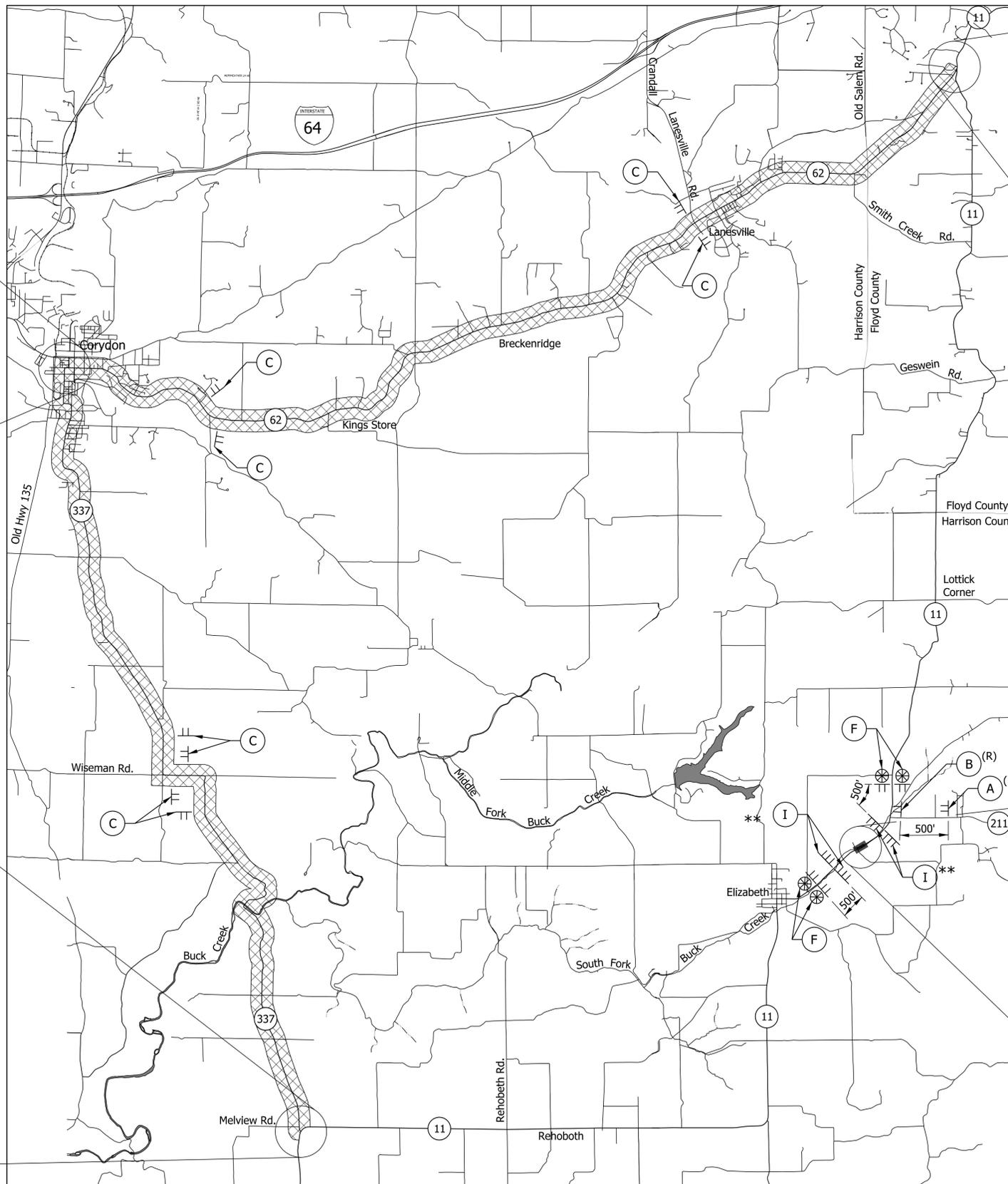
BRIDGE FILE	
011-31-10182	
DESIGNATION	
1600486	
DRAWING NUMBER	SHEETS
	1 of 22
CONTRACT	PROJECT
B-39896	1600486



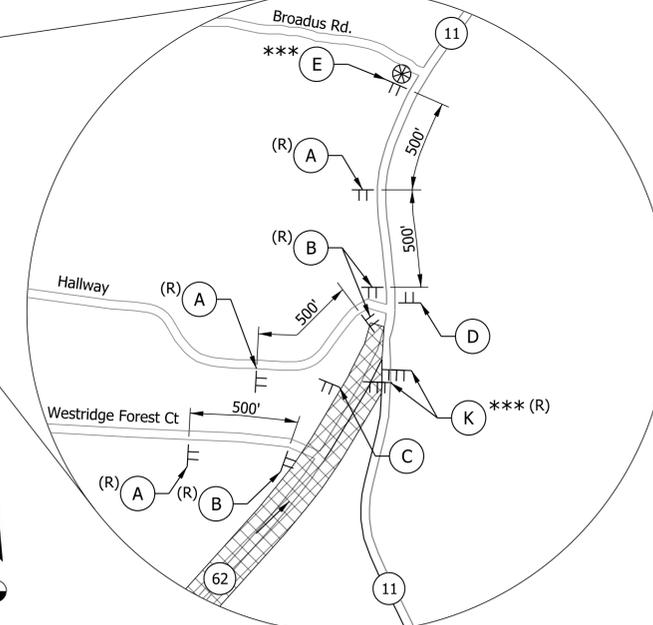
**INTERSECTION OF SR 337 AND SR 62**  
Scale: 1"=500'



**INTERSECTION OF SR 11 AND SR 337**  
Scale: 1"=500'

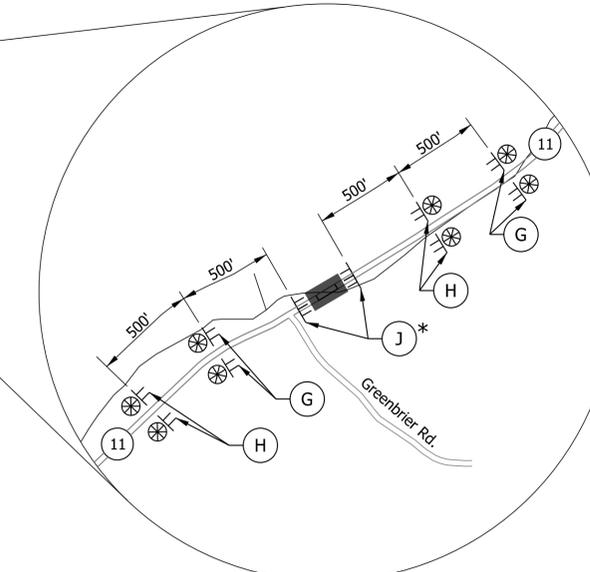


**DETOUR PLAN**  
Scale: 1"=4000'



**INTERSECTION OF SR 11 AND SR 62**  
Scale: 1"=500'

- LEGEND**
- Detour Route
  - Construction Sign
  - Low Intensity Construction Warning Light, Type A
  - Type III-A Barricades
  - Closure Area
  - With 24 Lft. of Type III-A Barricade
  - With 8 Lft. of Type III-B Barricade
  - With State Road (11) Sign (M1-5) Cardinal Direction (North, M3-2(N) or (South, M3-4(S))



**PROJECT WORKSITE**  
Scale: 1"=500'

Plot: 9/11/2019 11:46:51 AM By: huythkt Pen: Transportation.tbl



RECOMMENDED FOR APPROVAL _____	DESIGN ENGINEER _____	DATE _____
DESIGNED: CLF	DRAWN: CLF	
CHECKED: JAS	CHECKED: JAS	

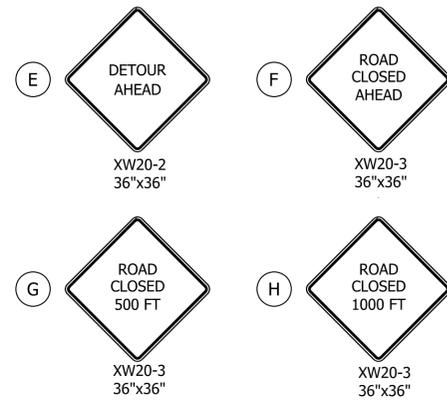
INDIANA  
DEPARTMENT OF TRANSPORTATION

MAINTENANCE OF TRAFFIC

SCALE AS NOTED	BRIDGE FILE 011-31-10182
	DESIGNATION 1600486
DRAWING NUMBER	SHEETS
	4 of 22
CONTRACT B-39896	PROJECT 1600486

**SIGN LEGEND:**

- A** Advance Turn Detour Route Marker Assembly  
Detour (XM4-8)  
Cardinal Direction (North, M3-1(S)) or (South, M3-3(S))  
State Route (11) (M1-5)  
Advance Turn Arrow (M5-1 or M5-2) (L or R)
- B** Directional Detour Route Marker Assembly  
Detour (XM4-8)  
Cardinal Direction (North, M3-1(S)) or (South, M3-3(S))  
State Route (11) (M1-5)  
Directional Arrow (M6-1 or M6-2) (L or R)
- C** Confirming Detour Route Marker Assembly  
Detour (XM4-8)  
Cardinal Direction (North, M3-1(S)) or (South, M3-3(S))  
State Route (11) (M1-5)  
Directional Arrow (M6-3)
- D** End Detour Route Marker Assembly  
End Detour (XM4-8a)  
Cardinal Direction (North, M3-1(S)) or (South, M3-3(S))  
State Route (11) (M1-5)



- I** Road Closure Sign Assembly  
"Road Closed \_\_ Miles Ahead" (R11-3a)
- J** Road Closure Sign Assembly  
"Road Closed" (R11-2)
- K** Road Closure Sign Assembly  
"Road Closed \_\_ Miles Ahead" (R11-3a)  
"Detour Arrow" (XM4-10 (L or R))

**NOTES:**

1. Refer to INDOT Standard Drawing E 801-TCDDT-01 for placement of signs and devices in a rural detour and E 801-TCDDT-04 for Detour Route Marker Assembly Details.
2. Two - "Route Number Closed On or After \_\_\_" Signs (XG20-5) to be placed as directed by the engineer prior to construction.
3. Upon completion of the project restripe the double yellow centerline and solid white edge lines and replace snowplowable raised pavement markers (SRPM).
4. Install R11-2 Road Closure sign assemblies on Type III-A barricades. Install R11-3a Road Closure sign assemblies on Type III-B barricades.

**CONSTRUCTION SIGN SUMMARY TABLE**

DESCRIPTION	SIGN TYPE	MAX TOTAL
ROUTE NUMBER CLOSED ON OR AFTER ___ (XG20-5)	A	2
ADVANCE DETOUR (XW20-2)	A	2
ROAD CLOSED 500 FT (XW20-3)	A	4
ROAD CLOSED 1000 FT (XW20-3)	A	4
ROAD CLOSED AHEAD (XW20-3)	A	4
CARDINAL DIRECTION (NORTH) (M3-2)	B	1
CARDINAL DIRECTION (SOUTH) (M3-4)	B	1
STATE ROUTE (SR 11) (M1-5)	B	2

**PAVEMENT MARKINGS TABLE**

LOCATION	LINE, MULTI-COMPONENT			SNOWPLOWABLE RAISED PAVEMENT MARKER
	SOLID YELLOW 4 IN.	SOLID WHITE 4 IN.	BROKEN YELLOW 4 IN.	
UNIT	LFT	LFT	LFT	EACH
TOTALS	840	1,680	210	21

**MAINTENANCE OF TRAFFIC QUANTITIES**

ITEM	UNITS	QUANTITY
		TOTAL
CONSTRUCTION SIGN, A	EACH	16
CONSTRUCTION SIGN, B	EACH	4
ROAD CLOSURE SIGN ASSEMBLY	EACH	10
DETOUR ROUTE MARKER ASSEMBLY	EACH	30
BARRICADE, III-A	LFT	48
BARRICADE, III-B	LFT	64

Plotted: 9/11/2019 11:46:55 AM By: huythkt Pen: Transportation.tbl

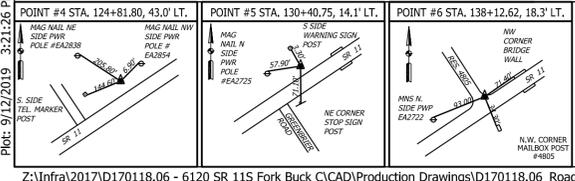
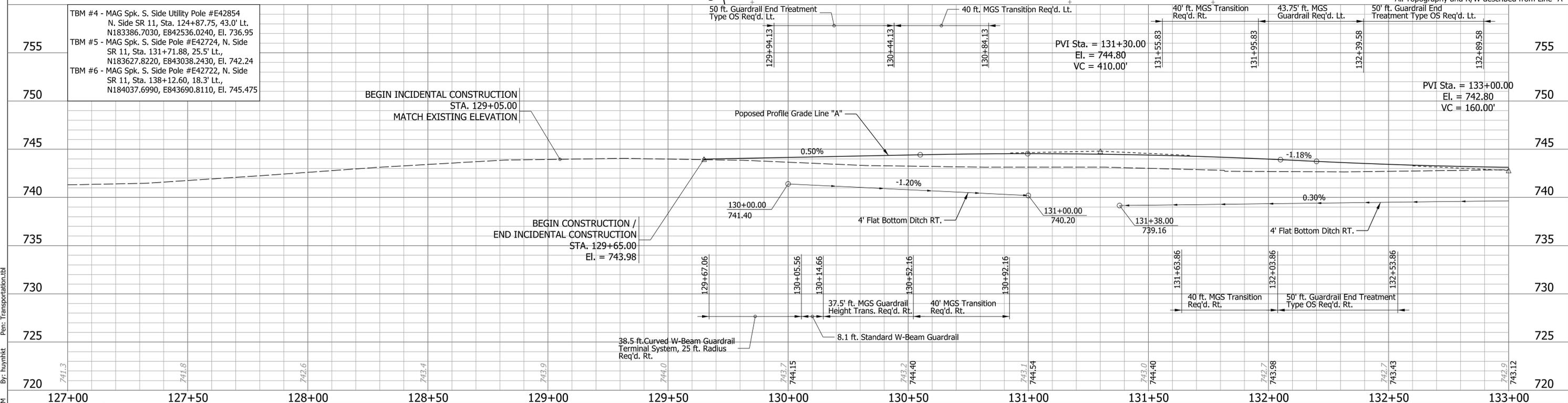
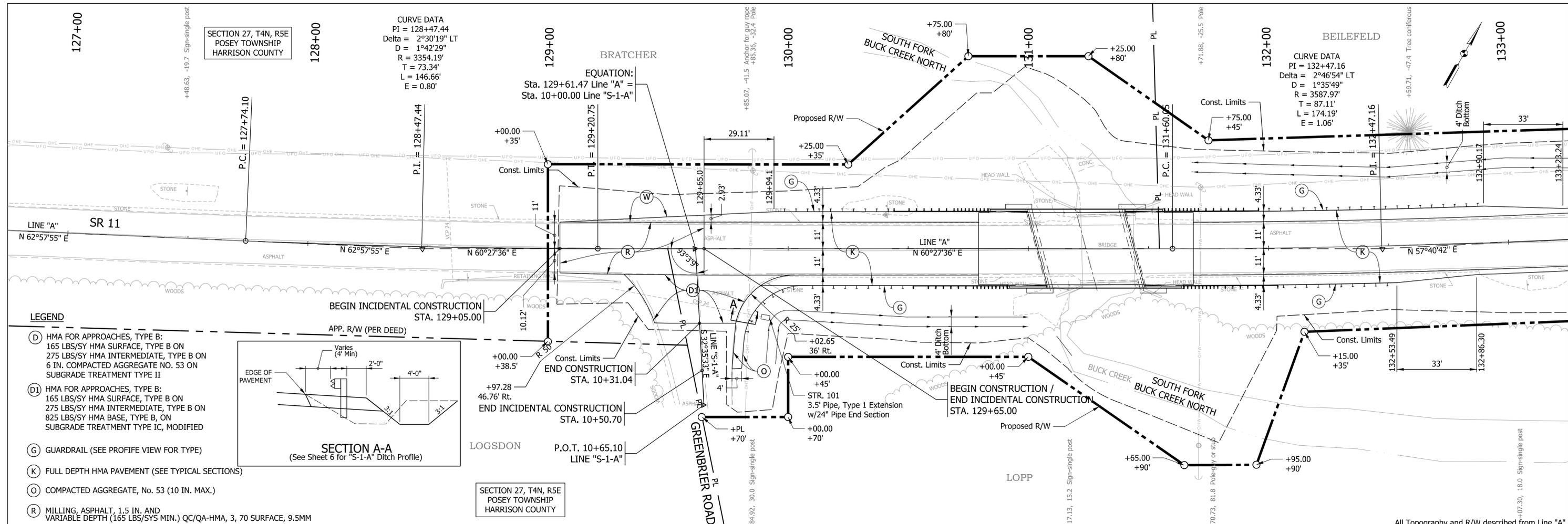


RECOMMENDED FOR APPROVAL _____	DESIGN ENGINEER _____	DATE _____
DESIGNED: CLF _____	DRAWN: CLF _____	
CHECKED: JAS _____	CHECKED: JAS _____	

INDIANA  
DEPARTMENT OF TRANSPORTATION

MAINTENANCE OF TRAFFIC

SCALE AS NOTED	BRIDGE FILE 011-31-10182
	DESIGNATION 1600486
DRAWING NUMBER	SHEETS 5 of 22
CONTRACT B-39896	PROJECT 1600486



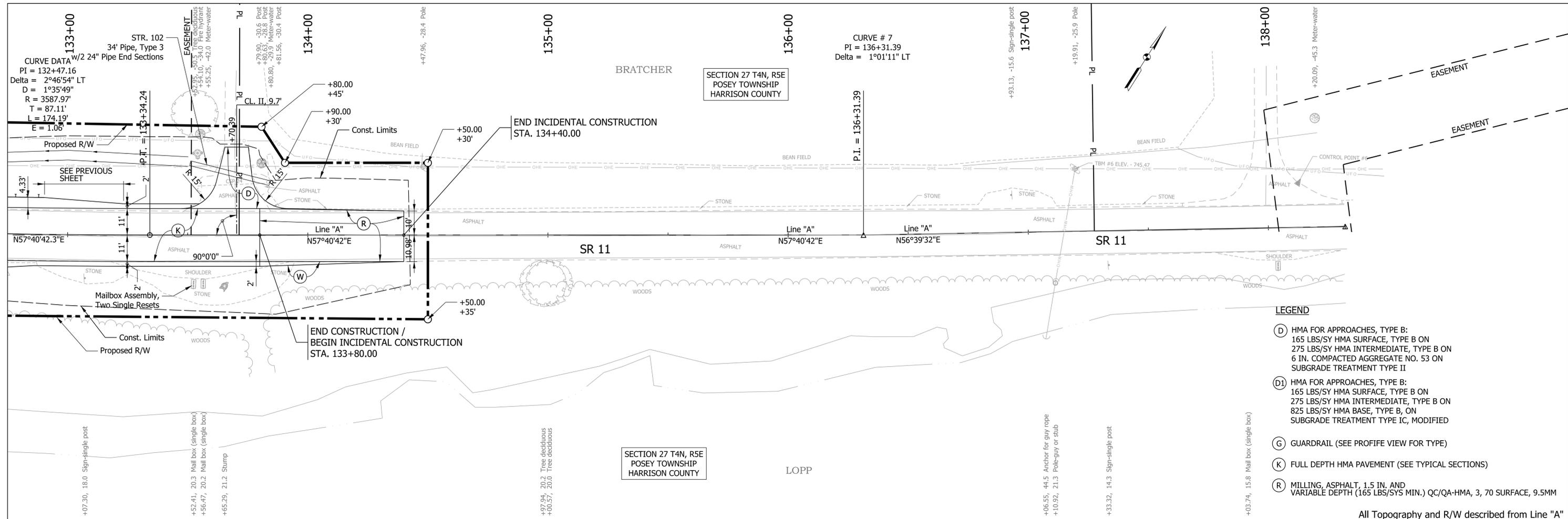
**gai consultants**

RECOMMENDED FOR APPROVAL _____ DESIGN ENGINEER _____ DATE _____ DESIGNED: ECL CHECKED: BWC	DRAWN: KTH CHECKED: BWC
---	----------------------------

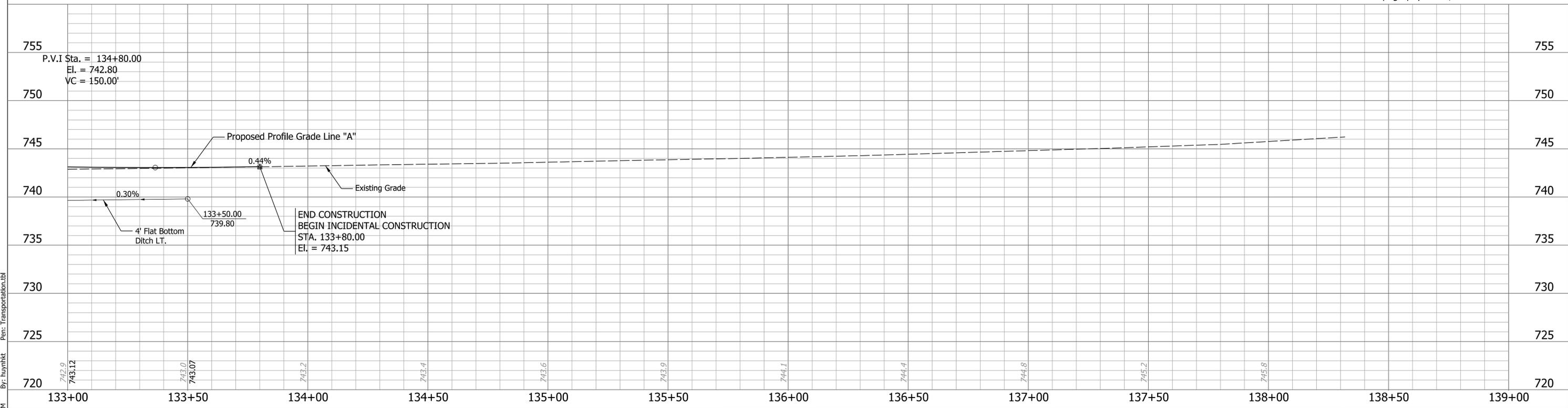
**INDIANA DEPARTMENT OF TRANSPORTATION**

**PLAN AND PROFILE LINE "A"**

SCALE 1" = 20'	BRIDGE FILE 011-31-10182
VERTICAL SCALE 1" = 5'	DESIGNATION 1600486
DRAWING NUMBER of _____	SHEETS 7 of 22
CONTRACT B-39896	PROJECT 1600486



- LEGEND**
- (D) HMA FOR APPROACHES, TYPE B:  
165 LBS/SY HMA SURFACE, TYPE B ON  
275 LBS/SY HMA INTERMEDIATE, TYPE B ON  
6 IN. COMPACTED AGGREGATE NO. 53 ON  
SUBGRADE TREATMENT TYPE II
  - (D1) HMA FOR APPROACHES, TYPE B:  
165 LBS/SY HMA SURFACE, TYPE B ON  
275 LBS/SY HMA INTERMEDIATE, TYPE B ON  
825 LBS/SY HMA BASE, TYPE B, ON  
SUBGRADE TREATMENT TYPE IC, MODIFIED
  - (G) GUARDRAIL (SEE PROFIVE VIEW FOR TYPE)
  - (K) FULL DEPTH HMA PAVEMENT (SEE TYPICAL SECTIONS)
  - (R) MILLING, ASPHALT, 1.5 IN. AND  
VARIABLE DEPTH (165 LBS/SYS MIN.) QC/QA-HMA, 3, 70 SURFACE, 9.5MM
- All Topography and R/W described from Line "A"



Plot: 9/12/2019 3:21:30 PM  
 By: huythk  
 Pen: Transportation.tbl



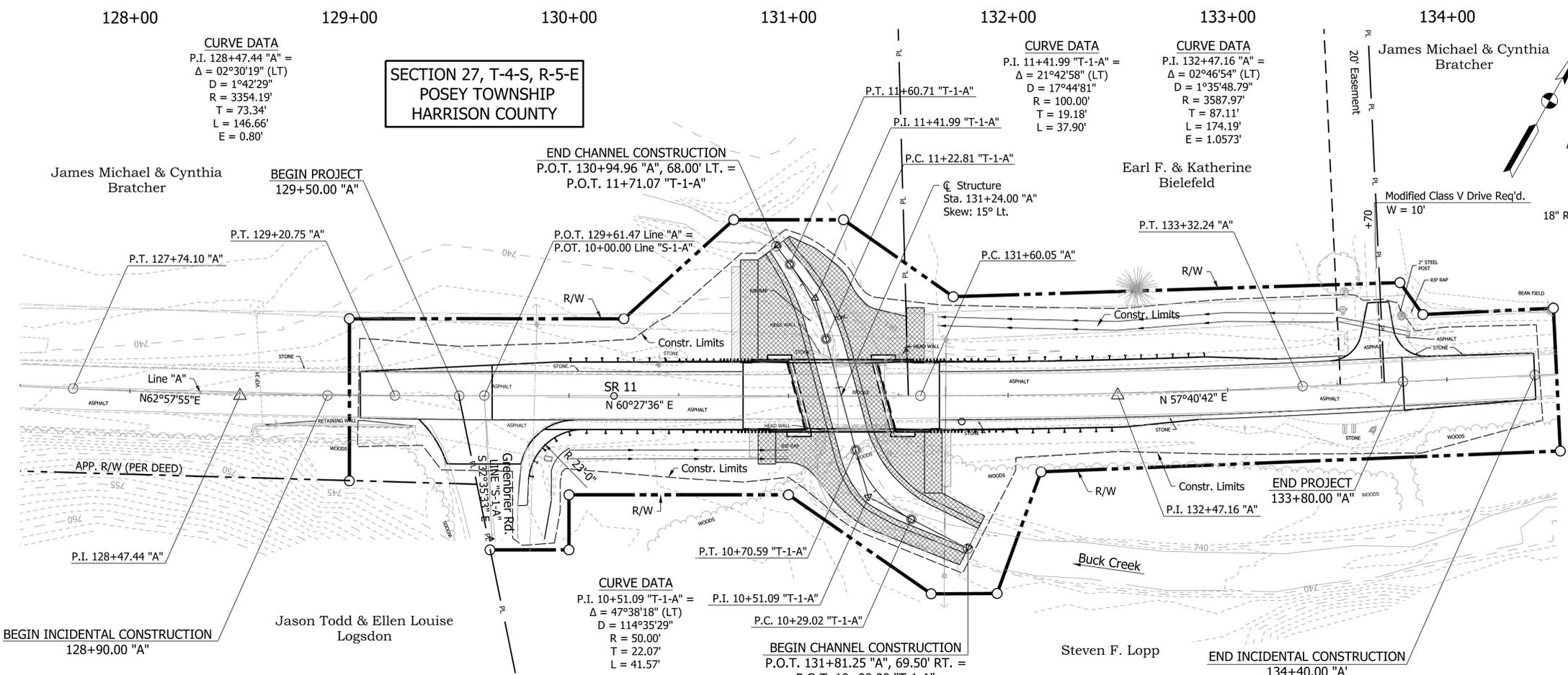
RECOMMENDED FOR APPROVAL	DESIGN ENGINEER	DATE
DESIGNED: ECL	DRAWN: KTH	
CHECKED: BWC	CHECKED: BWC	

INDIANA  
DEPARTMENT OF TRANSPORTATION

PLAN AND PROFILE  
LINE "A"

SCALE 1" = 20'	BRIDGE FILE 011-31-10182
VERTICAL SCALE 1" = 5'	DESIGNATION 1600486
DRAWING NUMBER of 8	SHEETS of 22
CONTRACT B-39896	PROJECT 1600486

**SECTION 27, T-4-S, R-5-E  
POSEY TOWNSHIP  
HARRISON COUNTY**



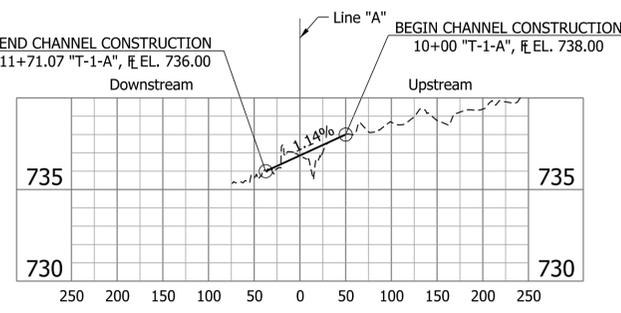
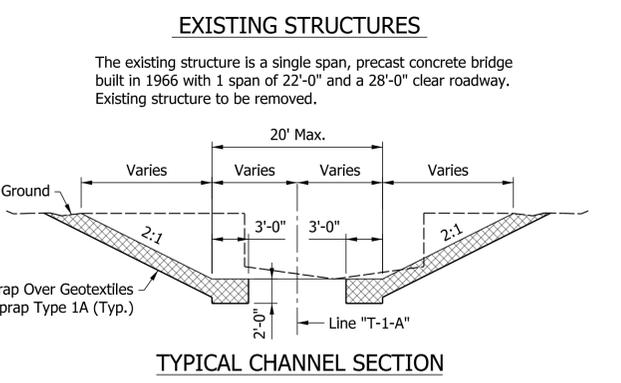
**CURVE DATA**  
P.I. 128+47.44 "A" =  
Δ = 02°30'19" (LT)  
D = 1°42'29"  
R = 3354.19'  
T = 73.34'  
L = 146.66'  
E = 0.80'

**CURVE DATA**  
P.I. 11+41.99 "T-1-A" =  
Δ = 21°42'58" (LT)  
D = 17°44'81"  
R = 100.00'  
T = 19.18'  
L = 37.90'

**CURVE DATA**  
P.I. 132+47.16 "A" =  
Δ = 02°46'54" (LT)  
D = 1°35'48.79"  
R = 3587.97'  
T = 87.11'  
L = 174.19'  
E = 1.0573'

**CURVE DATA**  
P.I. 10+51.09 "T-1-A" =  
Δ = 47°38'18" (LT)  
D = 114°35'29"  
R = 50.00'  
T = 22.07'  
L = 41.57'

**CURVE DATA**  
P.I. 10+51.09 "T-1-A" =  
Δ = 114°35'29"  
R = 50.00'  
T = 22.07'  
L = 41.57'



**HYDRAULIC DATA**

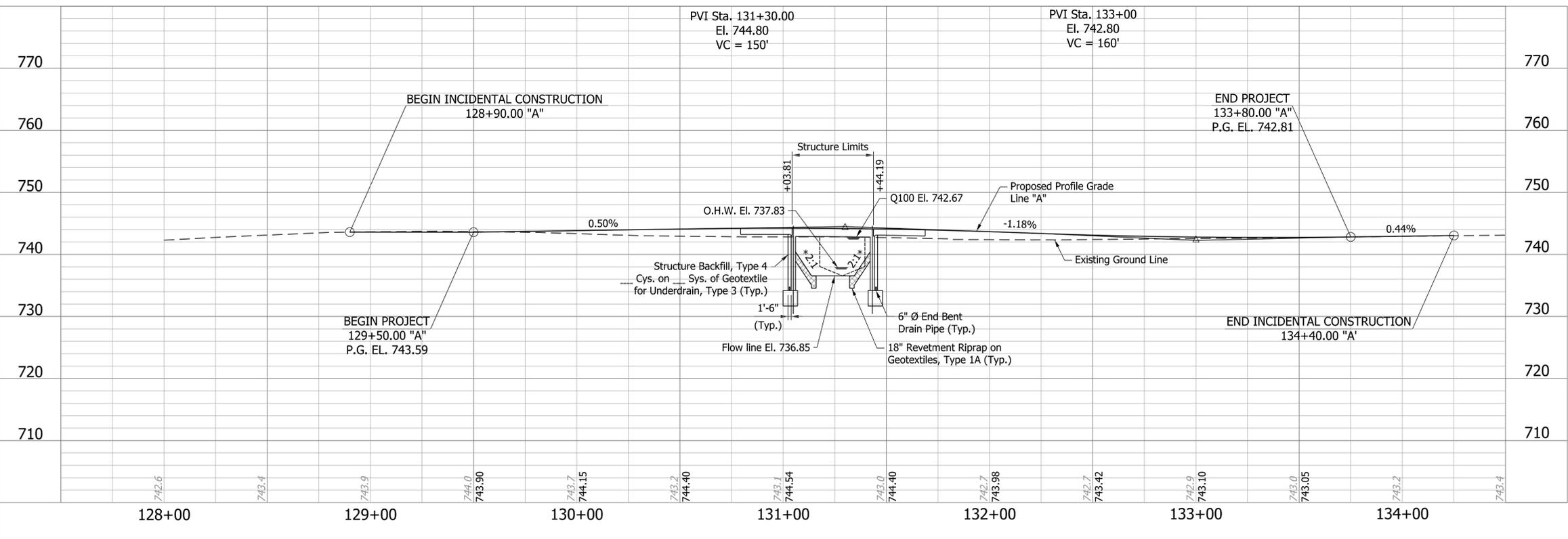
Waterway Opening Required =	729.92 sq.ft.
Waterway Opening Provided =	169.71 sq.ft.
Existing Road Overflow Waterway Area =	0 sq.ft.
Drainage Area =	1.59 sq.mi.
Design Discharge =	1400 cfs
Velocity Existing =	3.76 ft/s
Velocity Proposed =	5.06 ft/s
Q100 Elevation =	742.67 ft.
Existing Backwater at Q100 =	1.05 ft.
Proposed Backwater at Q100 =	0.50 ft.
Existing Q100 Headwater Elevation =	743.72 ft.
Proposed Q100 Headwater Elevation =	743.17 ft.
Existing Low Structure Elevation =	740.84 ft.
Proposed Low Structure Elevation =	742.83 ft.

**HYDRAULIC SCOUR DATA**

Q100 Discharge =	1400 cfs
Q100 Elevation =	742.67 ft.
Maximum Velocity at Q100 =	5.76 ft/sec
Scour Depth (Contraction) =	1.65 ft.
Scour Depth (Total) =	1.65 ft.
Low Scour Elevation =	735.20 ft.
Q500 Discharge =	1960 cfs
Q500 Elevation =	743.39 ft.
Maximum Velocity at Q500 =	5.71 ft/sec
Scour Depth (Contraction) =	2.72 ft.
Scour Depth (Total) =	2.72 ft.
Low Scour Elevation =	734.13 ft.

**NOTES:**  
All R/W on this sheet is described from Line "A".  
For guardrail limits and side ditch grades, see Road Plan and Profile Sheet.  
For alignment references, benchmarks and topo references, see Index.  
Cross-Hatched areas indicate limits of 18" Revetment Riprap over Geotextiles. (Est. Qty. = \* Tons of 18" Revetment Riprap over \* Sys. of Geotextiles)  
Hatched areas indicate limits of 4' wide sodding strip. (Est. Qty. = \* Sys.)  
\* ± To Abutment

**REINFORCED CONCRETE SLAB BRIDGE**  
SR 11 OVER SOUTH FORK BUCK CREEK  
1 SPAN: 38'-9 7/8" SKEW: 15° LT. CLEAR ROADWAY: 30'-0"  
HARRISON COUNTY



Plot: 9/11/2019 3:49:48 PM By: thomstam Pen: Transportation.tbl



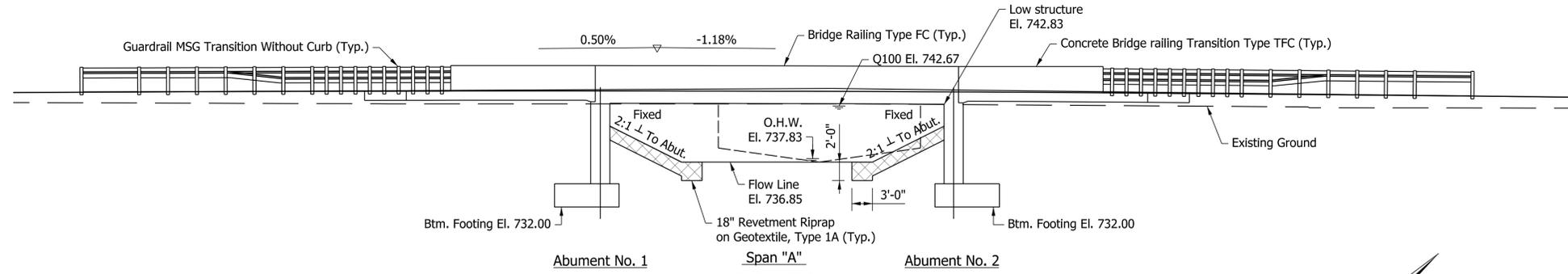
RECOMMENDED FOR APPROVAL	DESIGN ENGINEER	DATE
DESIGNED: NRT	DRAWN: TMT	
CHECKED: KMP	CHECKED: KMP	

**INDIANA  
DEPARTMENT OF TRANSPORTATION**

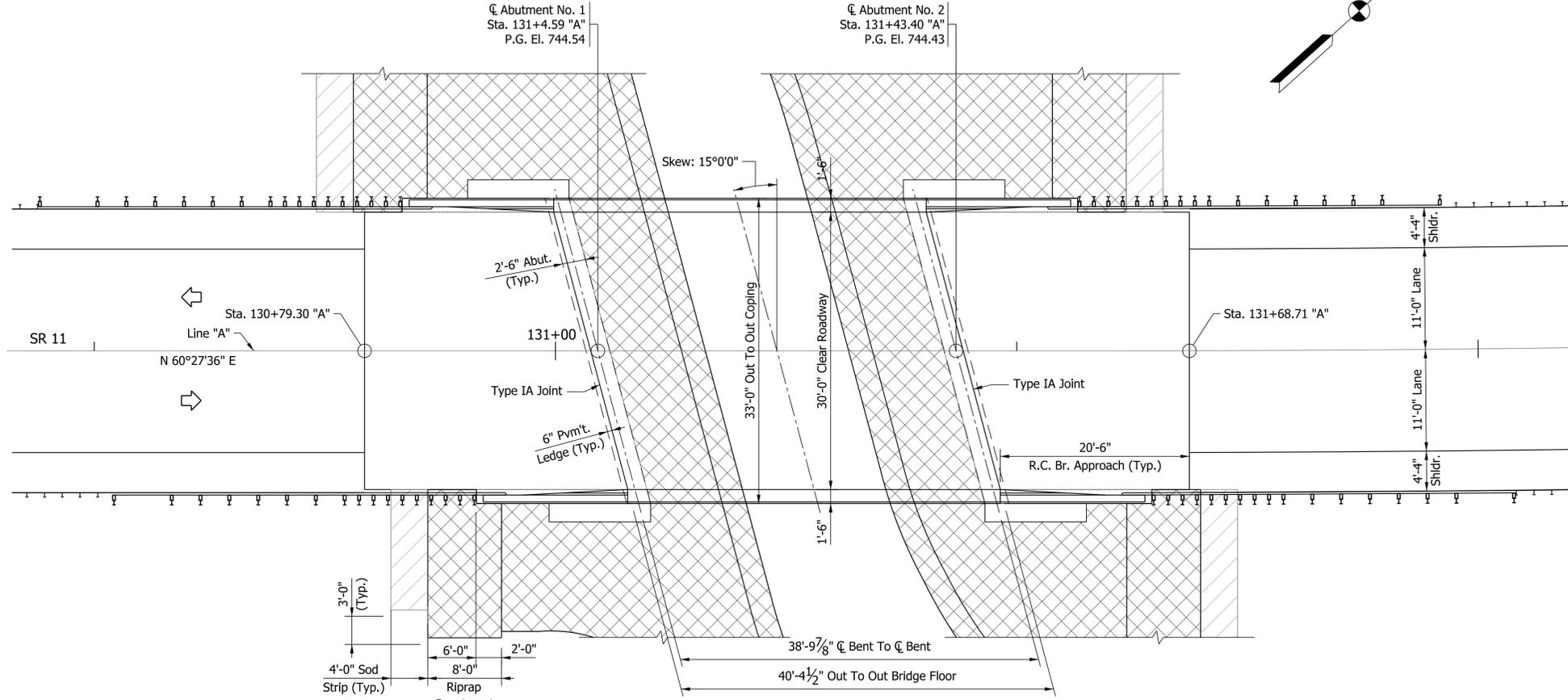
**LAYOUT**

HORIZONTAL SCALE 1"=30'-0", U.N.	BRIDGE FILE 011-31-10182
VERTICAL SCALE 1"=10'-0", U.N.	DESIGNATION 1600486
SHEETS	
11 of 22	
CONTRACT B-39896	PROJECT 1600486

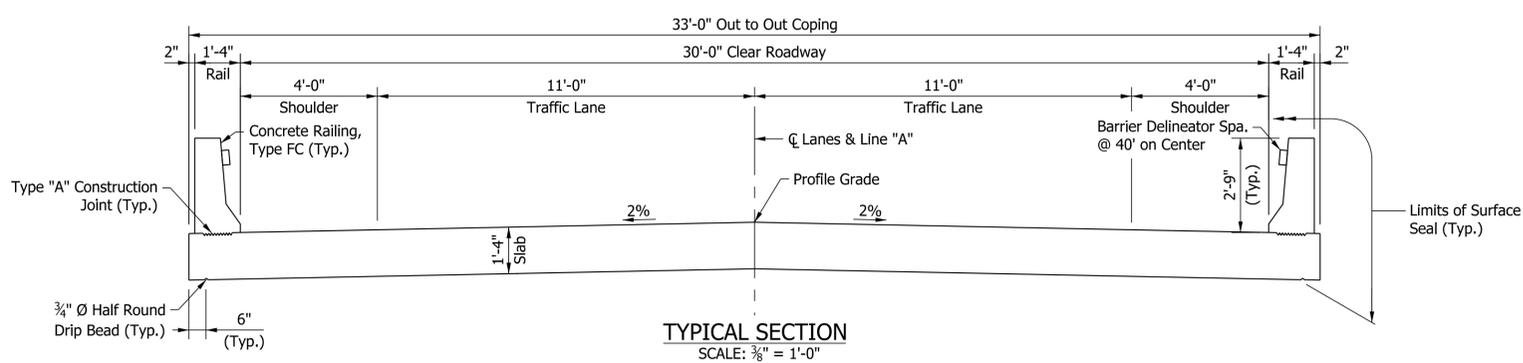
STRUCTURE TO BE BUILT ON A 150' VERTICAL CURVE



ELEVATION  
Scale: 1/8" = 1'-0"



PLAN  
Scale: 1/8" = 1'-0"



TYPICAL SECTION  
SCALE: 3/8" = 1'-0"

GENERAL NOTES

Reinforcing steel cover shall be 2 1/2" in top and 1" minimum in bottom of floor slab, 3" in footings, except bottom steel which shall be 4", and 2" in all other parts, unless noted.

DESIGN DATA

Superstructure and Substructure designed for HL-93 loading in accordance with AASHTO LRFD Bridge Design Specifications for Highway Bridges 8th Edition, 2010 and its subsequent interims.

DEAD LOAD

Actual weight plus 35 psf (composite) for future wearing surface and 15 (non-composite) for permanent metal deck forms.

FLOOR SLAB

Designed with a 7 1/2" structural depth plus a 1/2" sacrificial wearing surface.

DESIGN STRESSES

CONCRETE

Class "A" Concrete: f'c = 3,500 psi  
Class "B" Concrete: f'c = 3,000 psi  
Class "C" Concrete: f'c = 4,000 psi

REINFORCING STEEL

Grade 60 Fy = 60,000 psi

CONSTRUCTION LOADING

The exterior beam has been checked for strength, deflection, and overturning using the construction loads shown below. Cantilever overhang brackets were assumed for support of the deck overhang past the edge of the exterior beam. Finishing machine was assumed to be supported 6 in. outside the vertical coping form. The top overhang brackets were assumed to be located 6 in. past the edge of the vertical coping form. The bottom of overhang brackets were assumed to be braced against the intersection of the girder bottom flange and web.

DECK FALSEWORK LOADS

Designed for 15 lb/ft2 for permanent metal stay-in-place deck forms, removable deck forms, and 2-ft exterior walkways.

CONSTRUCTION LIVE LOAD

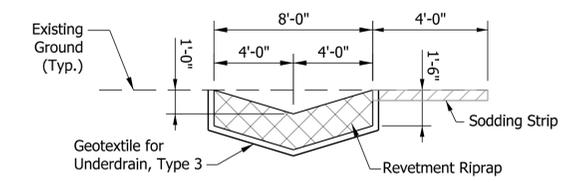
Designed for 20 lb/ft2 extending 2 ft past the edge of coping and 75 lb/ft vertical force applied at a distance of 6 in. outside the face of coping over a 30-ft length of the deck centered with the finishing machine.

FINISHING MACHINE LOAD

4500 lb distributed over 10 ft along the coping.

WIND LOAD

Designed for 70 mph horizontal wind loading in accordance with LRFD 3.8.1.



RIPRAP TURNOUT TYPICAL SECTION  
No Scale

REINFORCED CONCRETE SLAB BRIDGE

SR 11 OVER SOUTH FORK BUCK CREEK  
1 SPAN: 38'-9 7/8" SKEW: 15° LT. CLEAR ROADWAY: 30'-0"  
HARRISON COUNTY

Plot: 9/11/2019 3:49:51 PM By: thornstam Pen: Transportation.tbl

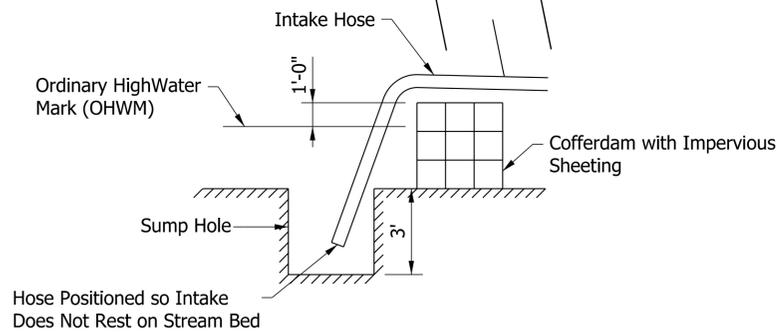
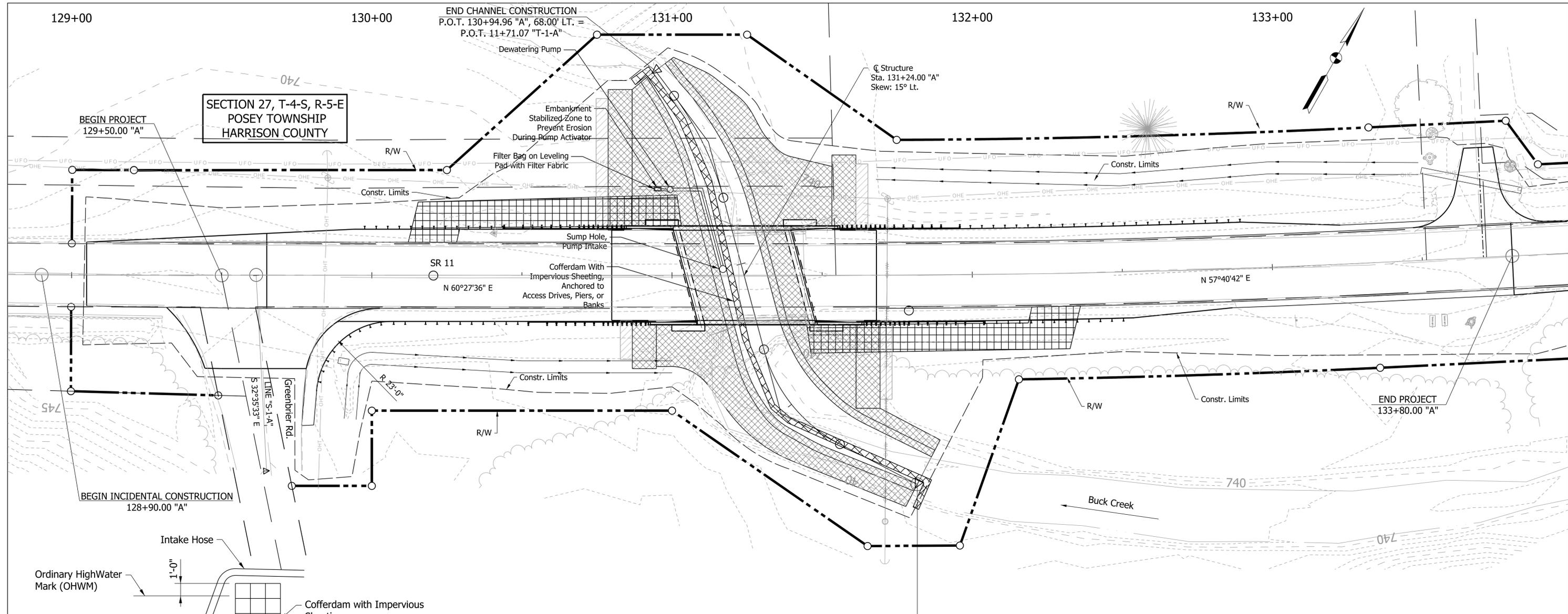


RECOMMENDED FOR APPROVAL	DESIGN ENGINEER	DATE
DESIGNED: NRT	DRAWN: RLJ	
CHECKED: KMP	CHECKED: KMP	

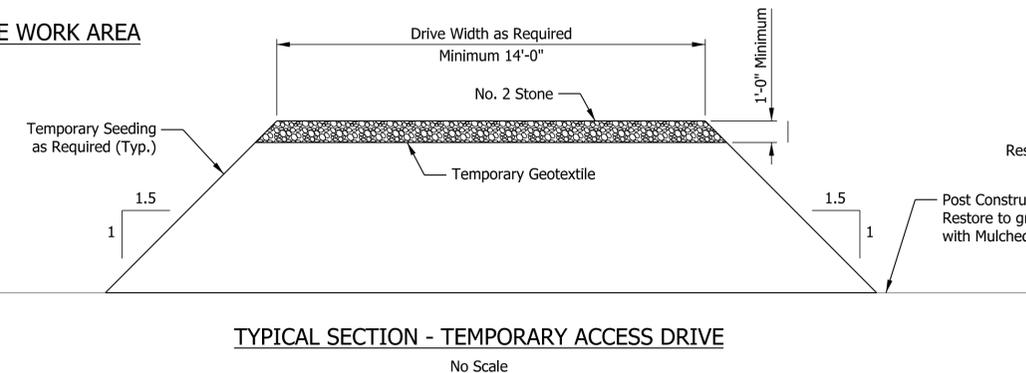
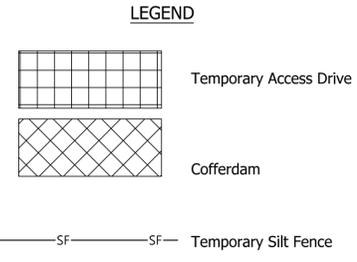
INDIANA  
DEPARTMENT OF TRANSPORTATION

GENERAL PLAN

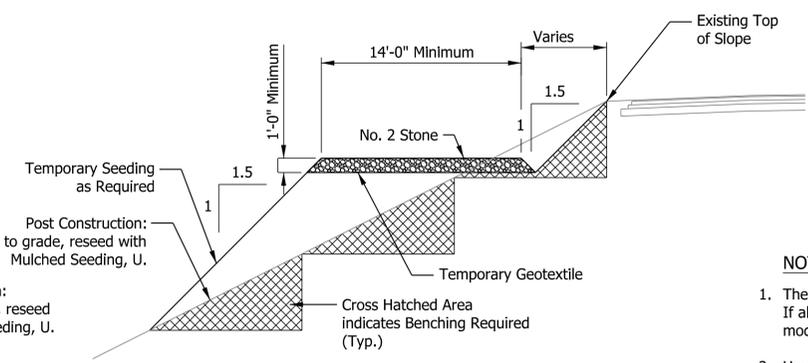
BRIDGE FILE	011-31-10182
DESIGNATION	1600486
DRAWING NUMBER	SHEETS
CONTRACT	PROJECT
B-39896	1600486



**COFFERDAM/SUMP HOLE WORK AREA**  
No Scale



**TYPICAL SECTION - TEMPORARY ACCESS DRIVE**  
No Scale



**TYPICAL SECTION - TEMPORARY ACCESS DRIVE ADJACENT TO ROADWAY**  
No Scale

- NOTES:**
1. The causeway and access drive details shown on this sheet were developed for permitting. If alternate methods are approved by the Engineer, the contractor shall be responsible for any modifications to design, details, and permits and associated cost.
  2. Upon project completion, temporary fill materials will be removed, graded to original or plan specified elevations, and planted with trees listed in Table 1. All tree planting must be completed within the limits of project stationing, and within existing Right-of-Way.
  3. Three (3) to five (5) gallon container stock trees will be planted at 10-12ft by 10-12ft spacing, and will be comprised of the species listed in Table 1.

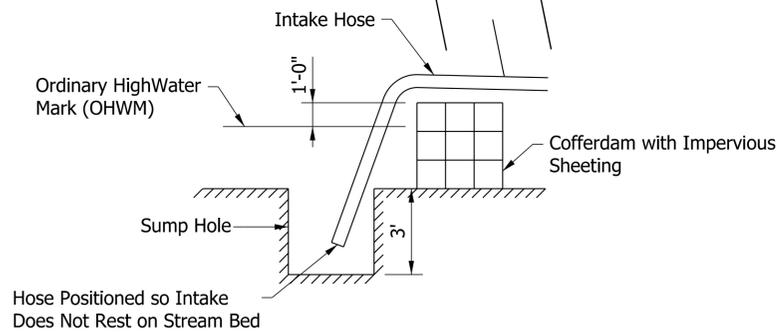
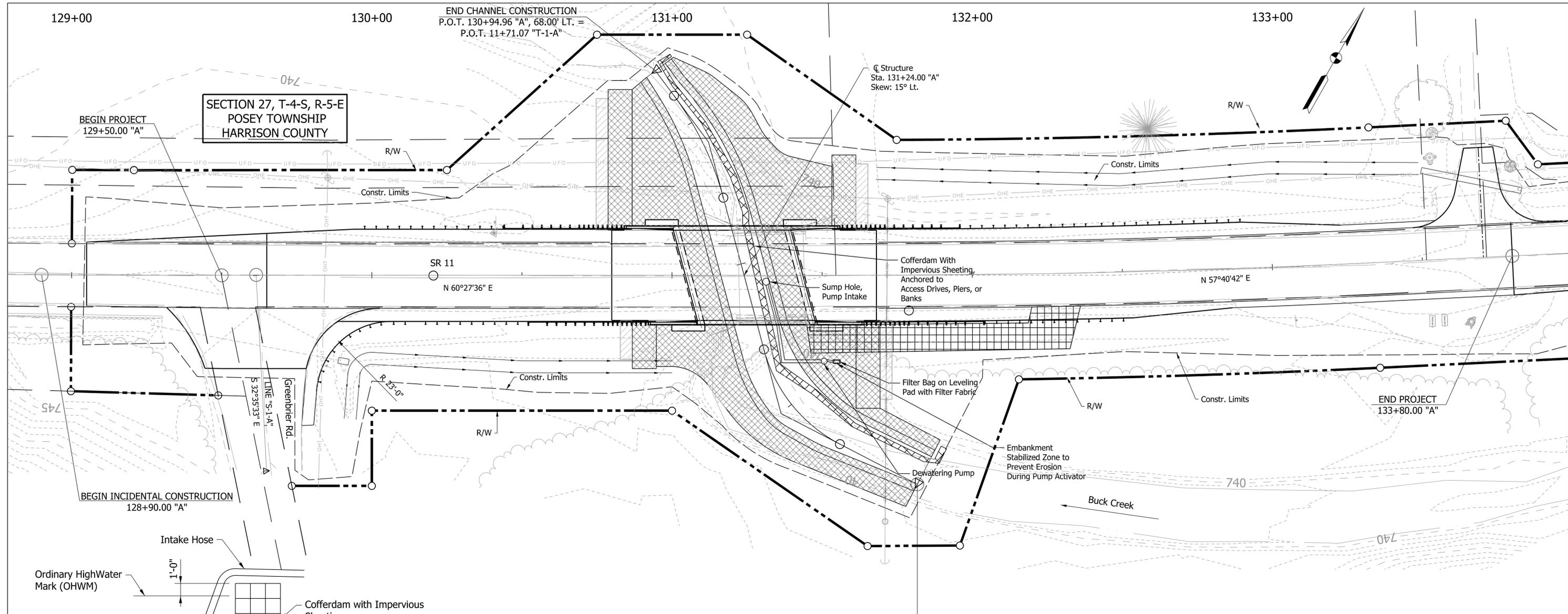
Plot: 3/4/2020 2:09:22 PM By: mchraj Pen: Transportation.tbl



RECOMMENDED FOR APPROVAL	DESIGN ENGINEER	DATE
DESIGNED: NRT	DRAWN: RLJ	
CHECKED: TDJ	CHECKED: NRT	

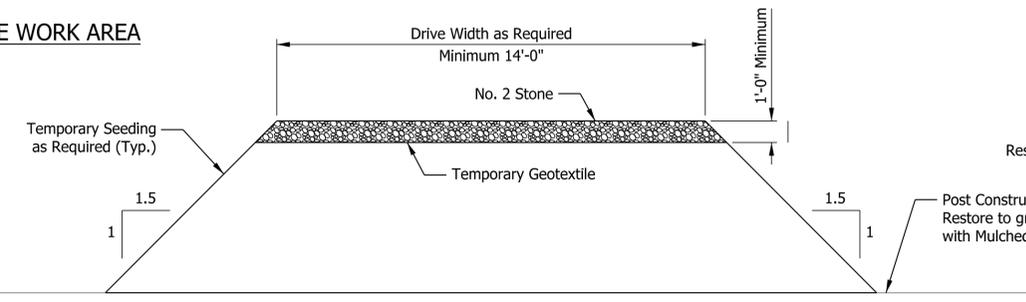
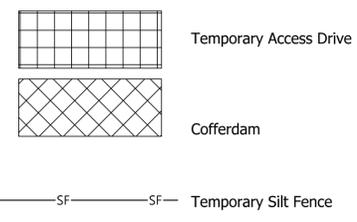
INDIANA DEPARTMENT OF TRANSPORTATION	
EROSION CONTROL PHASE 1	

SCALE 1/8" = 1'-0"	BRIDGE FILE 011-31-10182
	DESIGNATION 1600486
DRAWING NUMBER	SHEETS
	13 of 24
CONTRACT B-39896	PROJECT 1600486

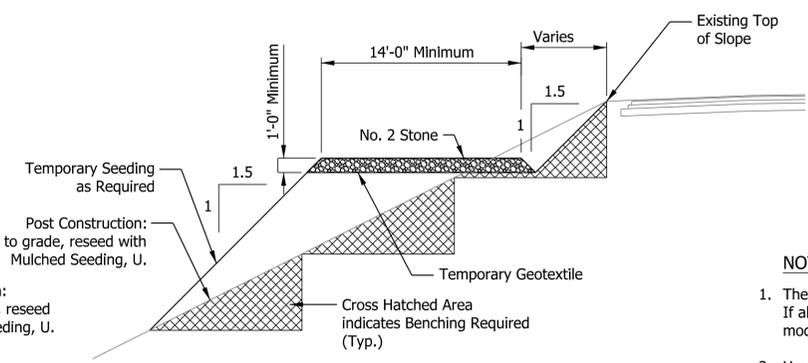


**COFFERDAM/SUMP HOLE WORK AREA**  
No Scale

**LEGEND**



**TYPICAL SECTION - TEMPORARY ACCESS DRIVE**  
No Scale



**TYPICAL SECTION - TEMPORARY ACCESS DRIVE ADJACENT TO ROADWAY**  
No Scale

- NOTES:**
1. The causeway and access drive details shown on this sheet were developed for permitting. If alternate methods are approved by the Engineer, the contractor shall be responsible for any modifications to design, details, and permits and associated cost.
  2. Upon project completion, temporary fill materials will be removed, graded to original or plan specified elevations, and planted with trees listed in Table 1. All tree planting must be completed within the limits of project stationing, and within existing Right-of-Way.
  3. Three (3) to five (5) gallon container stock trees will be planted at 10-12ft by 10-12ft spacing, and will be comprised of the species listed in Table 1.

Plot: 3/4/2020 2:09:26 PM  
 By: merraj  
 Pen: Transportation.tbl



RECOMMENDED FOR APPROVAL	DESIGN ENGINEER	DATE
DESIGNED: NRT	DRAWN: RLJ	
CHECKED: TDJ	CHECKED: NRT	

**INDIANA**  
**DEPARTMENT OF TRANSPORTATION**  
  
**EROSION CONTROL**  
**PHASE 2**

SCALE	BRIDGE FILE
1/16" = 1'-0"	011-31-10182
	DESIGNATION
	1600486
DRAWING NUMBER	SHEETS
	14 of 24
CONTRACT	PROJECT
B-39896	1600486